

COMMERCIAL OPERATING INSTRUCTION MANUAL

NSN: 4110-01-249-4476

REFRIGERATOR, MECHANICAL
BIOLOGICAL, BLOOD BANK

120/230 VOLT
50/60 HZ. A.C.

THE JEWETT REFRIGERATOR CO.
2 LETCHWORTH STREET
BUFFALO, NEW YORK 14213

CONTRACT NO. DLA120-87-C-8514

MODEL NO: CTI-1B-06

1987

PRF 106

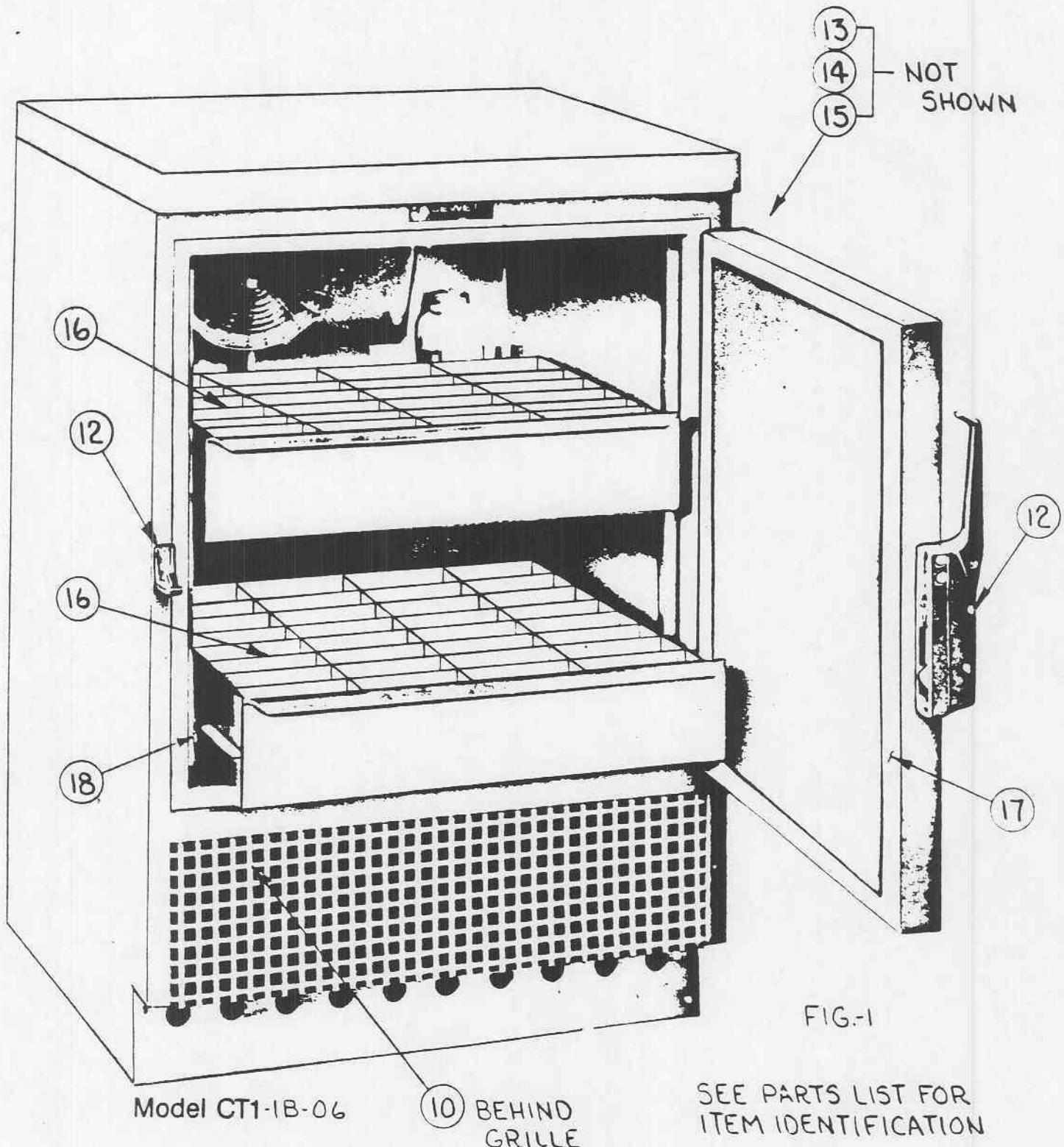
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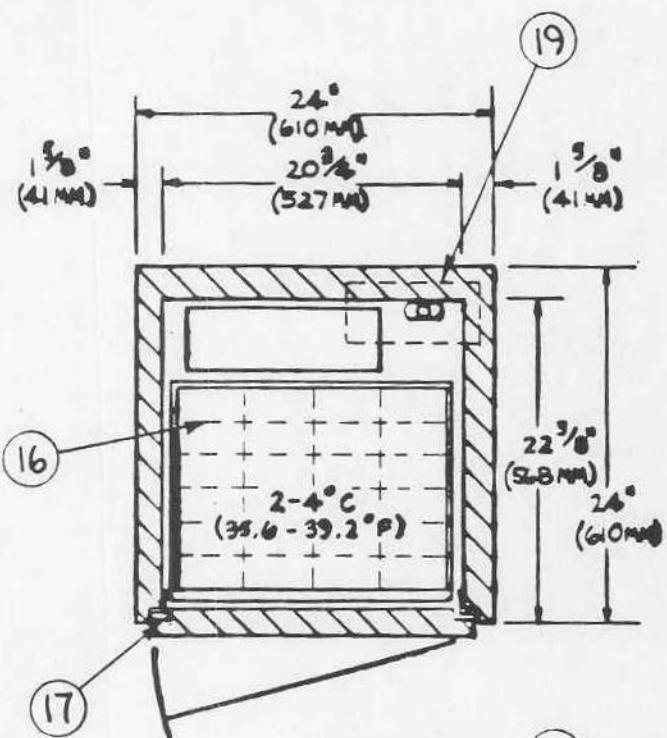
Compact Counter-top Blood Bank



Model CT1-IB-06

10 BEHIND
GRILLE

SEE PARTS LIST FOR
ITEM IDENTIFICATION



GENERAL SPECIFICATIONS

EXTERIOR : FRONT, SIDES, REMOVABLE TOP:
20 GA. TYPE 304, POL. STA. STL.
CABINET TOP, BACK, & BOTTOM: 20 GA. GALV. STL.

INTERIOR : 20 GA. TYPE 304, 2B STA. STL.

INSULATION: 1 1/2" POLYURETHANE - VAPOR SEALED

GASKET : EXTRUDED VINYL w/NEOPRENE THERMO -
BREAK AT DOOR OPENING

HARDWARE : EDGE-MOUNT TYPE, ADJUSTABLE, CHROME -
PLATED

DRAWERS : (2) 18 GA., STA. STL. w/ SOLID BOTTOM &
w/ DELRIN ROLLERS

CONTROLS : DUAL, SET TO OPERATE 2 to 4°C (35.6 to 39.2°F)

COOLING UNIT : BLOWER COIL, AUTO OFF, CYCLE DEFROST

COND. UNITS : 1/5 H.P., HERMETICALLY SEALED

ELECTRICAL DATA: 115 / 60/1, 3.5 AMPS
AVAILABLE ON REQUEST: 220 / 50 / 1, 1.7 AMPS

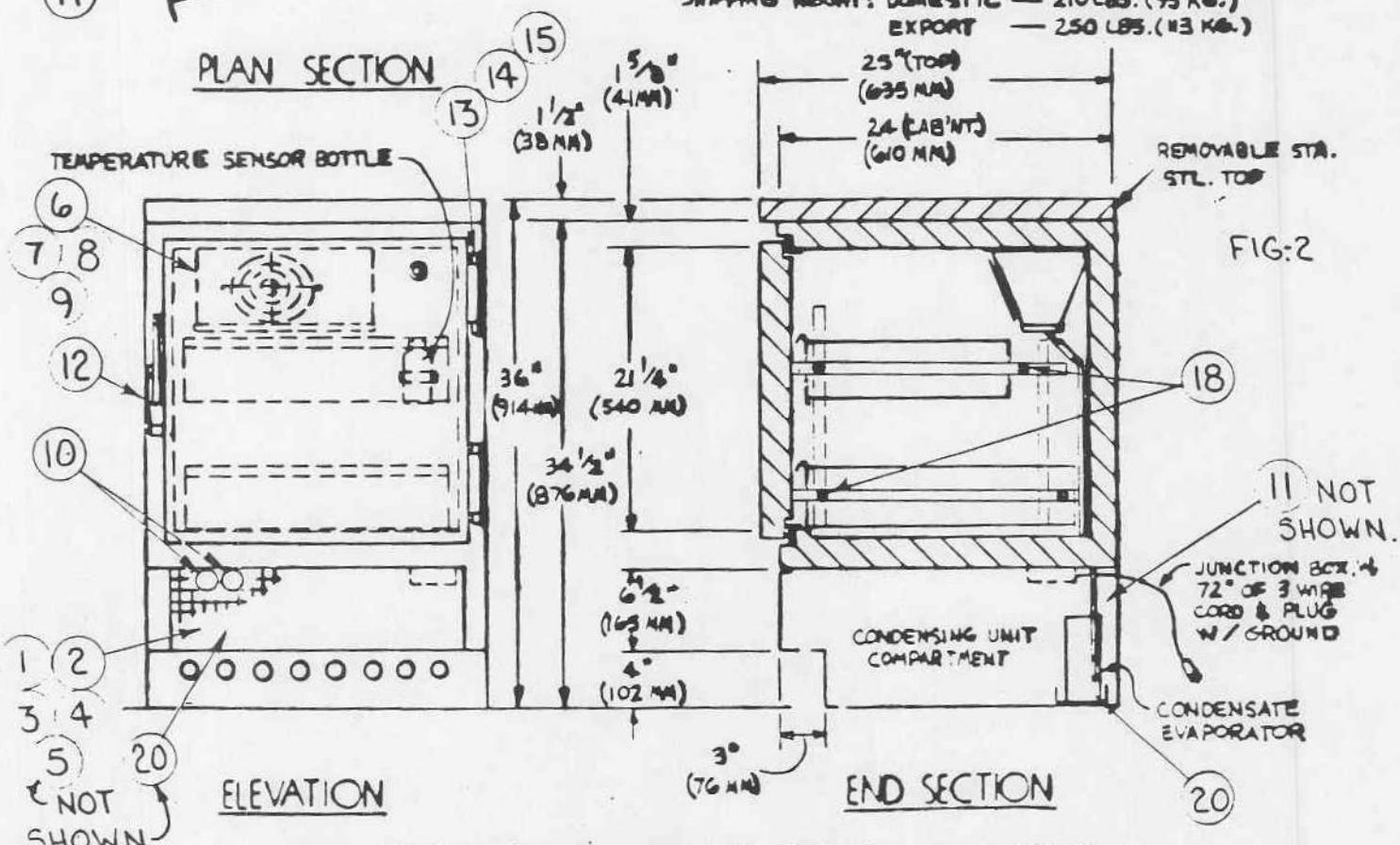
CAPACITY : 5.4 CU.FT.

450 ML. BAG CAPACITY — 60

500 ML. BOTTLE CAPACITY — 48

SHIPPING WEIGHT: DOMESTIC — 210 LBS. (95 KG.)
EXPORT — 250 LBS. (113 KG.)

PLAN SECTION



CT-1-1B-06 BLOOD BANK REFRIGERATOR

SEE PARTS LIST FOR
ITEM IDENTIFICATION.

PRF106-2

ADDITIONAL EQUIPMENT SUPPLIED:

- TPM 1000-1B TEMP. MONITOR
- 8GRIWBR RECORDING THERMOMETER
- SR1910-1 DWR. DIVIDERS

(FOR REFRIGERATOR - MODEL CTL-1B-06)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M U/I</u>
1	59431	83601	OVERLOAD, CONDENSING UNIT	1	EA
2	59431	82932	RELAY, CONDENSING UNIT	1	EA
3	59431	810E006A65	MOTOR, CONDENSING UNIT FAN	1	EA
4	59431	51536	BLADE, CONDENSING UNIT FAN	1	EA
5	59431	AE1360A	MOTOR COMPRESSOR	1	EA
6	14852	5007-S	MOTOR, UNIT COOLER FAN	1	EA
7	14852	5101-B	BLADE, UNIT COOLER FAN	1	EA
8	14852	5054-D	GUARD, UNIT COOLER FAN	1	EA
9	14852	69546003	FINNED COIL, UNIT COOLER	1	EA
10	32011	CTL001	CONTROL, TEMPERATURE	2	EA
11	32011	CPY001	CAPILLARY DRIER ASSEMBLY	1	EA
12	87518	2830-2110	FASTENER & STRIKE ASSY., DOOR	1	EA
13	87518	2842-1009-1110	HINGE, DOOR	2	EA
14	32011	SR1905-1	SHIM, HINGE	2	EA
15	32011	SR1905-3	SHIM, HINGE	2	EA
16	32011	SR1901-1	DIVIDER, DRAWER	1	SET
17	32011	GKT011	GASKET, DOOR 21 1/2 X 21 1/2	1	EA
18	87518	1338-1013-3000	BEARING, DRAWER ROLLER	8	EA
19	ACME	T60802	TRANSFORMER 220/115/50/60 750 VA	1	EA
20	17412	1800W	WAFERS, CONDENSATE EVAPORATOR	1	SET

GENERAL INFORMATION

Each Jewett Refrigerator is a complete packaged unit ready to operate when connected to electric power lines. It is not necessary to have a refrigeration serviceman place the unit in service. Each refrigerator has been given a 48-hour test prior to shipment. Read all the instructions first before proceeding with the installation.

This blood bank refrigerator has been designed and engineered in keeping with the recommended standard temperature requirements established by the American Association of Blood Banks, the American National Red Cross and the Food and Drug Administration.

This blood bank refrigerator is equipped with the following items:

EQUIPMENT PROVIDED

1. TPM1000-1B temperature/power monitor
2. 8GR1WBR record thermometer
3. SR1901-1 drawer dividers
4. Dual Voltage/Cycle transformer

See sections on Monitor and Recording Thermometer for information on these items.

START-UP PROCEDURES

1. Move the refrigerator into the desired location, making sure the bottom of the refrigerator is evenly supported. If the cabinet sets on an uneven floor, a slight rocking or vibration might result when the condensing unit is set in operation. Thin shims under the points of rest can be used to equalize the distribution of weight.
2. An automatic condensate remover is located in the machinery space eliminating the necessity for a floor drain. Install fiberglass plates in pan per Fig. 6, Page 14. Make sure power cords do not come in contact with water in pan.
3. The hermetic sealed condensing unit (1/5 HP) is shipped with all service valves open and ready for operation. Do not adjust valves. The unit is set to operate on 115 volts, 60 cycle, alternating current, without the use of the transformer.

To use the unit on 115 volt/50 cycle or 230 volt/50/60 cycle, alternating current, the refrigerator power cord and monitor power cord must be plugged into the transformer. Adjust internal jumpers in transformer as follows:

230V/60 HZ - A TO 1
- B TO 4

230V/50 HZ - A TO 1
- B TO 5

115V/50 HZ - A TO 5
- B TO 6

CAUTION: DO NOT OPEN COVER OF TRANSFORMER WHEN CONNECTED TO POWER SOURCE
HAZARDOUS VOLTAGES INSIDE. Then plug transformer into power source.

5. Make certain that cabinet is located so front grille opening is unobstructed.

See sections of Monitor/Recording Thermometer for instructions on these items

OPERATING INSTRUCTIONS

CAUTION: MAKE SURE TRANSFORMER IS SET UP FOR PROPER ELECTRICAL VOLTAGE & FREQUENCY BEFORE PLUGGING IN UNIT

- 1) REFRIGERATOR IS DESIGNED TO OPERATE AT 115/230V - 50/60HZ - 1 PHASE POWER. OPERATION AT ANY OTHER POWER MAY CAUSE PERMANENT DAMAGE TO MECHANISM. SEE LABEL AT REAR MOUNTED TRANSFORMER FOR INSTRUCTIONS ON ADJUSTMENTS TO SUIT AVAILABLE VOLTAGE & FREQUENCY.
- 2) THE COOLING COIL FAN RUNS CONTINUOUSLY. THE COIL DEFROSTS AUTOMATICALLY ON COMPRESSOR OFF CYCLE.
- 3) DUAL TEMPERATURE CONTROLS ARE FACTORY SET TO OPERATE ON 36°F TO 40°F AIR TEMPERATURE. IF ONE CONTROL IS CHANGED, THE SECOND CONTROL MUST BE CHANGED ACCORDINGLY.
- 4) CLEAN THE FAN COIL OF THE CONDENSING UNIT PERIODICALLY. ALSO CLEAN THE INTERIOR CABINET AND DRAWERS OFTEN, USING WARM WATER AND A GOOD FUNGICIDAL DETERGENT.

This unit is equipped with dual controls and operates at +2° to 4°C (36°F to 40°F). The second temperature control has been installed for extra protection against temperature failures. If one temperature control should fail to close, the second temperature control automatically takes over. If the setting of one temperature control is changed, the second control must be changed accordingly. A reliable serviceman should inspect the controls yearly to assure that both are in good condition. These controls have been factory preset. See Maintenance Section for resetting information. This unit is for continuous operation.

To start or stop refrigerator, unplug refrigerator or transformer for power source.

For operation of monitor/recording thermometer, see applicable sections.

ADJUSTING TEMPERATURE

Turn dial knob on temperature controls counter-clockwise for warmer operation, clockwise for colder operation. Move dial 1/4 space at a time, allow 2 hours for refrigerator to balance out before adjusting again.

EQUIPMENT CARE

1. To protect the cabinet finish as well as the product, the refrigerator should be cleaned often using luke warm water and a good fungicidal detergent to eliminate air borne low temperature growing organisms.
2. The drawers should also be wiped occasionally to prevent the accumulation of any foreign matter. The drawer rollers do not require any lubrication.
3. The fan in the blower coil operates continuously and needs no lubrication.
4. The condensing unit in the bottom of the cabinet is completely sealed and needs no oiling or other lubrication. However, the finned condensing unit through which air passes can become clogged with lint and other foreign substances in the air. The openings between the fins should be cleaned of lint every few months. A small test tube brush works well for this purpose.
5. An annual inspection of the mechanical refrigerating equipment by a competent service man is recommended, as a mechanic can frequently make adjustments which prevent a breakdown in the future.

THEORY OF OPERATION

THE BASIC REFRIGERATION CYCLE

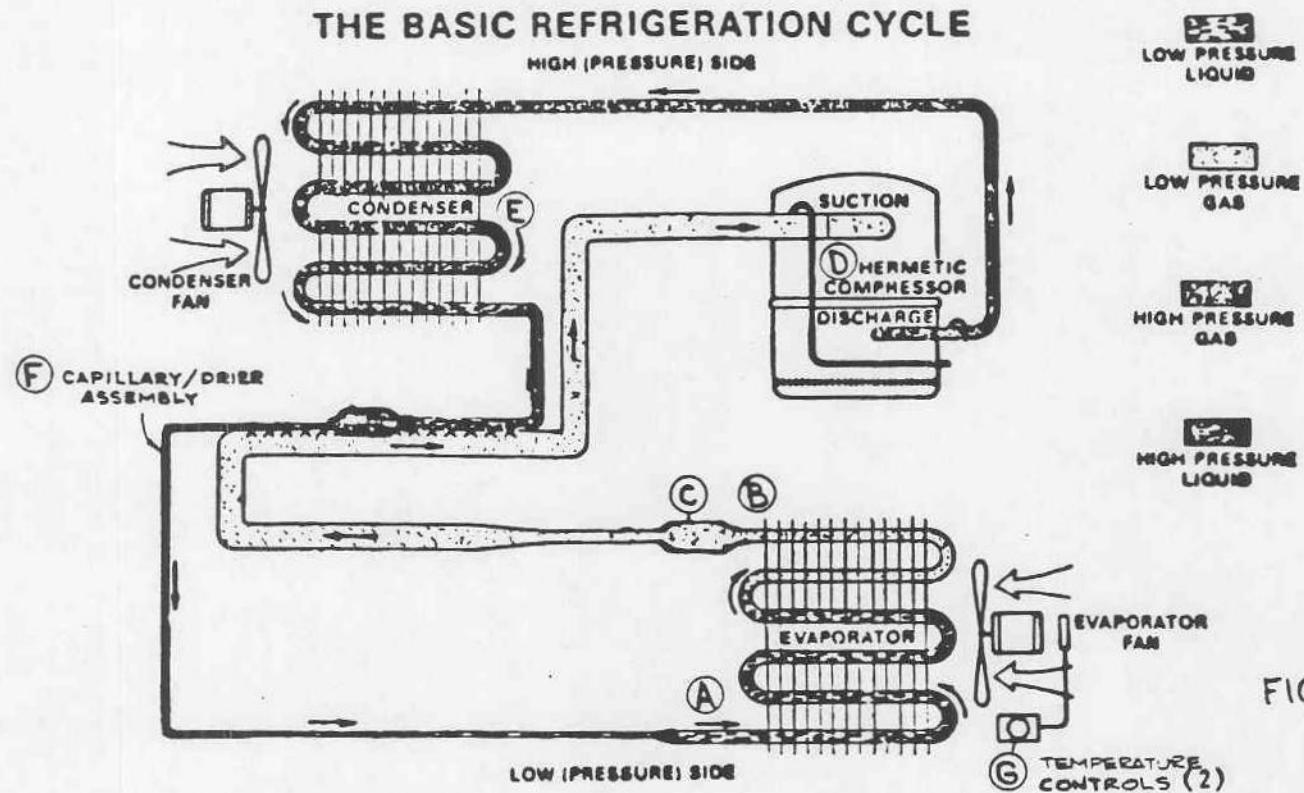


FIG.-3

Mechanical refrigeration is accomplished by continuously circulating, evaporating, and condensing a fixed supply of refrigerant in a closed system. Evaporation occurs at a low temperature and low pressure while condensation occurs at a high temperature and pressure. Thus, it is possible to transfer heat from an area of low temperature (i.e., refrigerator cabinet) to an area of high temperature (i.e., Lab Room).

Beginning the cycle at the evaporator inlet (A) the low pressure liquid expands, absorbs heat, and evaporates, changing to a low pressure gas at the evaporator outlet (B).

The compressor (D) pumps this gas from the evaporator through the accumulator (C), increases its pressure, and discharges the high pressure gas to the condenser (E). The accumulator is designed to protect the compressor by preventing slugs of liquid refrigerant from passing directly into the compressor. An accumulator should be included on all systems subjected to varying load conditions or frequent compressor cycling. In condenser (E) heat is removed from the gas which then condenses and becomes a high pressure liquid.

As the high pressure liquid refrigerant enters the evaporator (A) it is subjected to a much lower pressure due to the suction of the compressor and the pressure drop across the capillary/drier assembly (F). Thus, the refrigerant tends to expand and evaporate. In order to evaporate, the liquid must absorb heat from the air passing over the evaporator.

Eventually, the desired air temperature is reached and the temperature control (G) will break the electrical circuit to the compressor motor and stop the compressor.

As the temperature of the air through the evaporator rises, the temperature control remakes the electrical circuit. The compressor starts, and the cycle continues.

(GENERAL TROUBLE SHOOTING)
SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	REPAIR
A	Compressor will not start--no hum	1. Line disconnect switch open. 2. Fuse removed or blown. 3. Overload protector tripped. 4. Control stuck in open position. 5. Control off due to cold location. 6. Wiring improper or loose.	1. Close start or disconnect switch. 2. Replace fuse. 3. Refer to electrical section. 4. Repair or replace control. 5. Relocate control. 6. Check wiring against diagram.
B	Compressor will not start--hums but trips on overload protector	1. Low voltage to unit. 2. Starting capacitor defective. 3. Relay failing to close. 4. Compressor motor has a winding open or shorted. 5. Internal mechanical trouble in compressor. 6. Improperly wired.	1. Determine reason and correct. 2. Determine reason and replace. 3. Determine reason and correct, replace if necessary. 4. Replace compressor. 5. Replace compressor. 6. Check wiring against diagram.
C	Compressor starts, but does not switch off of start winding	1. Low voltage to unit. 2. Relay failing to open. 3. Run Capacitor defective. 4. Excessively high discharge pressure. 5. Compressor motor has a winding open or shorted. 6. Internal mechanical trouble in compressor (tight). 7. Improperly wired.	1. Determine reason and correct. 2. Determine reason and correct, replace if necessary. 3. Determine reason and replace. 4. Check discharge shut-off valve, possible overcharge, or insufficient cooling on condenser. 5. Replace compressor. 6. Replace compressor. 7. Check wiring against diagram.
D	Compressor starts and runs, but short cycles on overload protector	1. Excessive discharge pressure. 2. Low voltage to unit (or unbalanced if three phase). 3. Overload protector defective. 4. Run capacitor defective. 5. Compressor too hot--return gas hot. 6. Suction pressure too high. 7. Compressor motor has a winding shorted. 8. Additional current passing through overload protector.	1. Check ventilation, restrictions in cooling medium, restrictions in refrigeration system. 2. Determine reason and correct. 3. Check current, replace protector. 4. Determine reason and replace. 5. Check refrigerant charge (fix leak) add if necessary. 6. Check for possibility of misapplication. Use stronger unit. 7. Replace compressor. 8. Check wiring diagram. Check for added fan motors, pumps, etc., connected to wrong side of protector.

(GENERAL TROUBLE SHOOTING)
SERVICE CHART

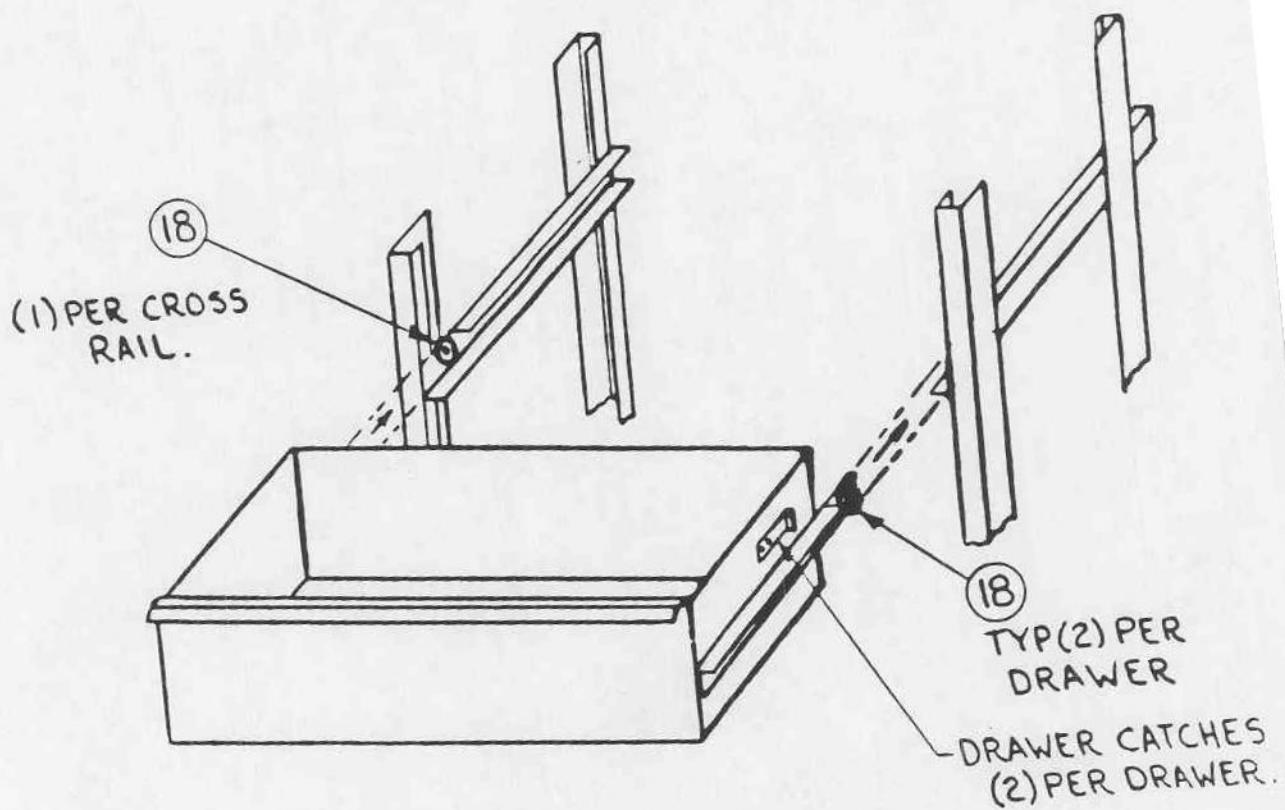
SYMPTOM	POSSIBLE CAUSE	REPAIR
E	Unit runs OK, but short cycles on	<ol style="list-style-type: none"> 1. Overload protector. 2. Thermostat. 3. High pressure cut-out due to: <ol style="list-style-type: none"> a. insufficient air or water supply. b. overcharge. c. air in system. 4. Low pressure cut-out due to: <ol style="list-style-type: none"> a. liquid line solenoid leaking. b. compressor valve leak. c. undercharge. d. restriction in expansion device.
F	Unit operates long or continuously	<ol style="list-style-type: none"> 1. Shortage of refrigerant. 2. Control contacts stuck or frozen. 3. Refrigerated or air conditioned space has excessive load or poor insulation. 4. Dirty Condenser. 5. Evaporator coil iced. 6. Restriction in refrigeration system. 7. System inadequate to handle load. 8. Filter dirty.
G	Start capacitor open, shorted or blown	<ol style="list-style-type: none"> 1. Relay contacts not opening properly. 2. Prolonged operation on start cycle due to: <ol style="list-style-type: none"> a. low voltage to unit. b. improper relay. c. starting load too high. 3. Excessive short cycling. 4. Improper capacitor.
H	Run capacitor open, shorted or blown	<ol style="list-style-type: none"> 1. Improper capacitor. 2. Excessively high line voltage (110% of rated max.).
I	Relay defective or burned out	<ol style="list-style-type: none"> 1. Line voltage too high or too low. 2. Excessive short cycling. 3. Incorrect relay. 4. Incorrect mounting angle. 5. Relay being influenced by loose vibrating mounting. 6. Incorrect run capacitor.

(GENERAL TROUBLE SHOOTING)
SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	REPAIR
J	Space temperature too high	1. Control setting too high. 2. Expansion valve too small. 3. Cooling coils too small 4. Inadequate air circulation.	1. Reset control. 2. Use larger valve. 3. Add surface or replace. 4. Improve air movement.
K	Suction line frosted or sweating	1. Expansion valve passing excess refrigerant or is oversized. 2. Expansion valve stuck open. 3. Evaporator fan not running. 4. Overcharge of refrigerant.	1. Readjust valve or replace with smaller valve. 2. Clean valve of foreign particles, replace if necessary. 3. Determine reason & correct. 4. Correct charge.
L	Liquid line frosted or sweating	1. Restriction in filter drier. 2. Liquid shut-off (king valve) partially closed.	1. Replace part. 2. Open valve fully.
M	Unit noisy	1. Loose parts or mountings. 2. Tubing rattle. 3. Bent fan blade causing vibration. 4. Fan motor bearing worn.	1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.
N	Unit cools but does not get to set point	1. Fan not operating.	1. Check door switch. a. Check to see if door switch actuator (angle) is depressing switch.
O	Unit not defrosting (Paragon Timer)	1. Timer malfunctioning. 2. Timer pins missing. 3. Timer motor. 4. Timer contacts. 5. Defrost termination and fan delay thermostat defective. 6. Heater safety control contacts open. 7. Loose door seal. 8. Improperly set defrost termination and fan delay thermostat. 9. Poor contact between evaporation drain pan and heater element.	1. Manually advance timer to defrost to verify malfunction. 2. Install pins. 3. Replace timer. 4. Replace timer. 5. Replace defrost termination and fan delay thermostat. 6. Replace heater safety control. 7. Adjust door latch/install new gasket. 8. Adjust control CCW. 9. Install missing screws in blower coil housing.

NOTE: Jewett Refrigerators and Freezers are designed to operate in areas that are heated to 60°F. Installation in unheated areas may require a low temperature compressor protection kit for satisfactory operation.

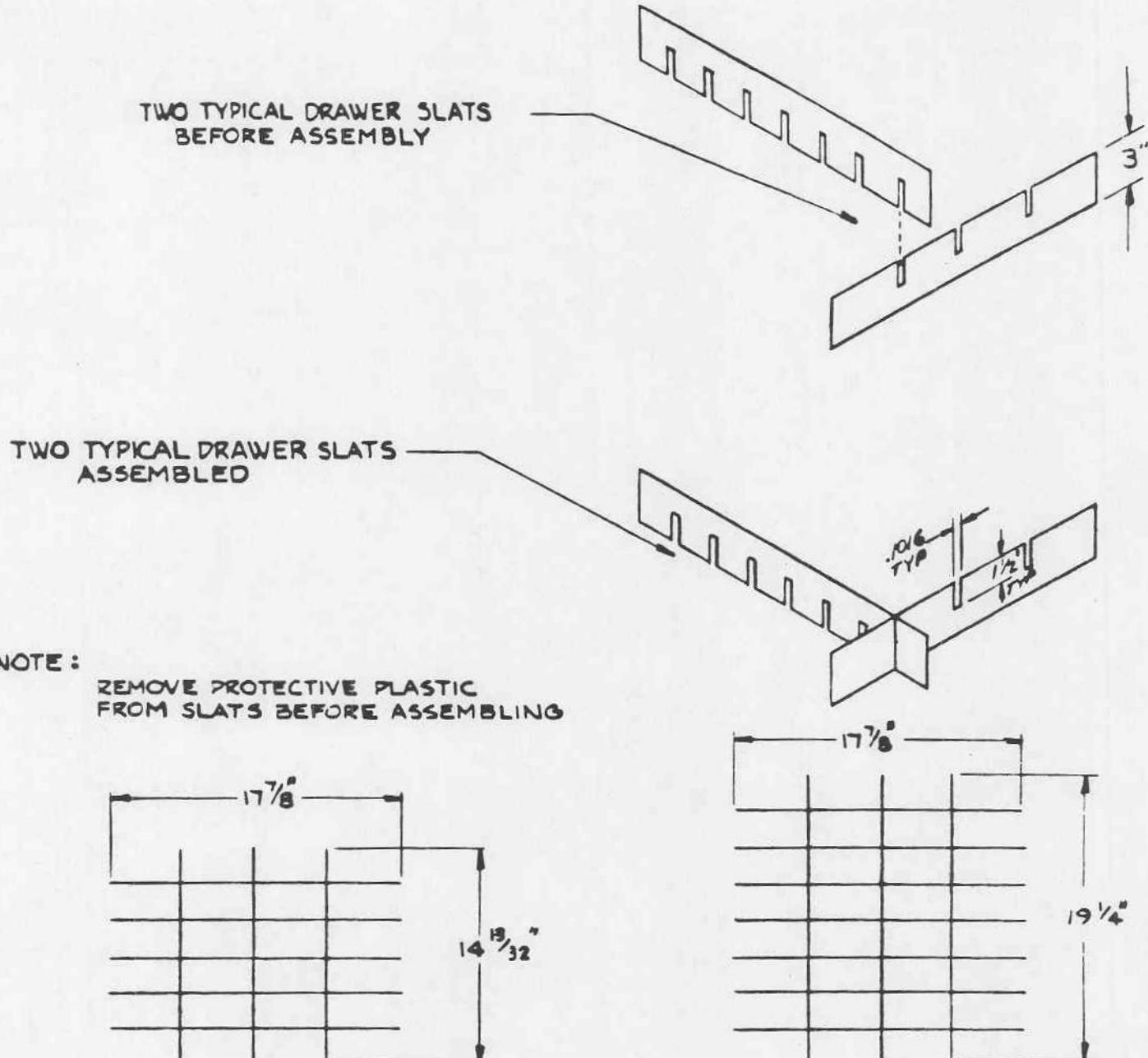
FIG.-4



DRAWER INSTALLATION INSTRUCTIONS
(FOR MODEL CT1-1B-06)

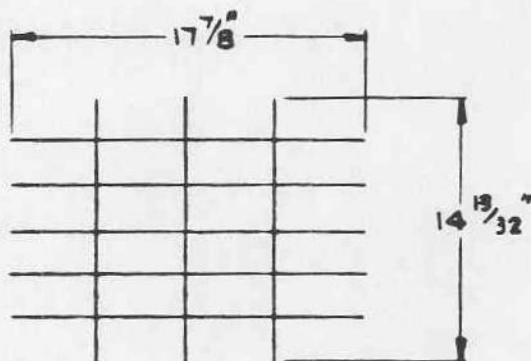
1. Pull Drawer Open.
2. Depress Drawer Catches each side of drawer.
3. Pull drawer forward and upward.
4. To disengage rollers and catches.

TO REINSTALL, REVERSE ABOVE PROCEDURE.



NOTE:

REMOVE PROTECTIVE PLASTIC
FROM SLATS BEFORE ASSEMBLING



DIVIDER ASSEMBLY "A"

CONSISTS OF: 3 DIVIDERS 14 19/32" LG.
5 DIVIDERS 17 7/8" LG.

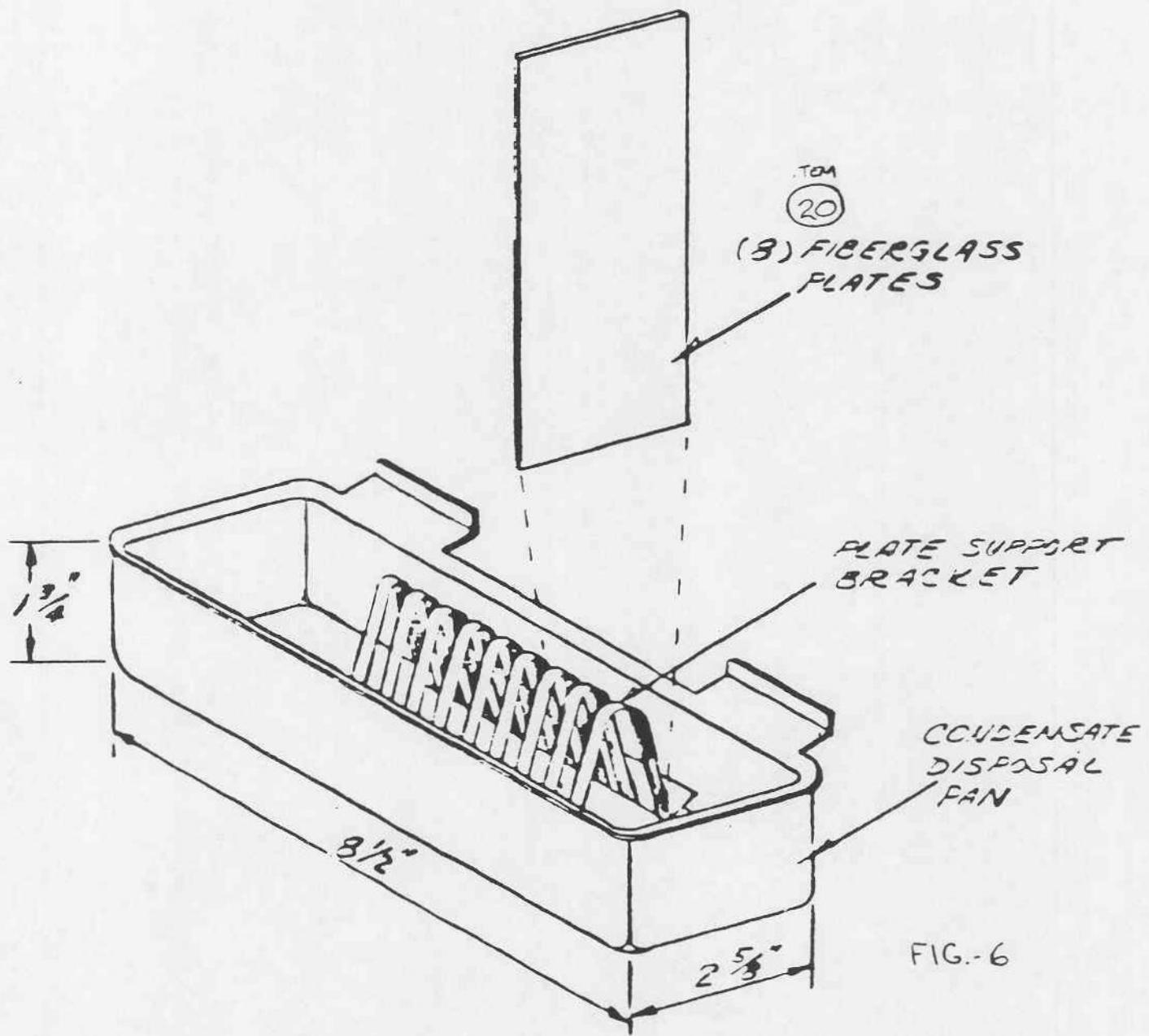
(FCR CT-1) PART # SR 1901-1 SET OF 2 - CONSISTS OF (1) STYLE "A" & (1) STYLE "B" ASSEMBLIES.

DIVIDER ASSEMBLY "B"

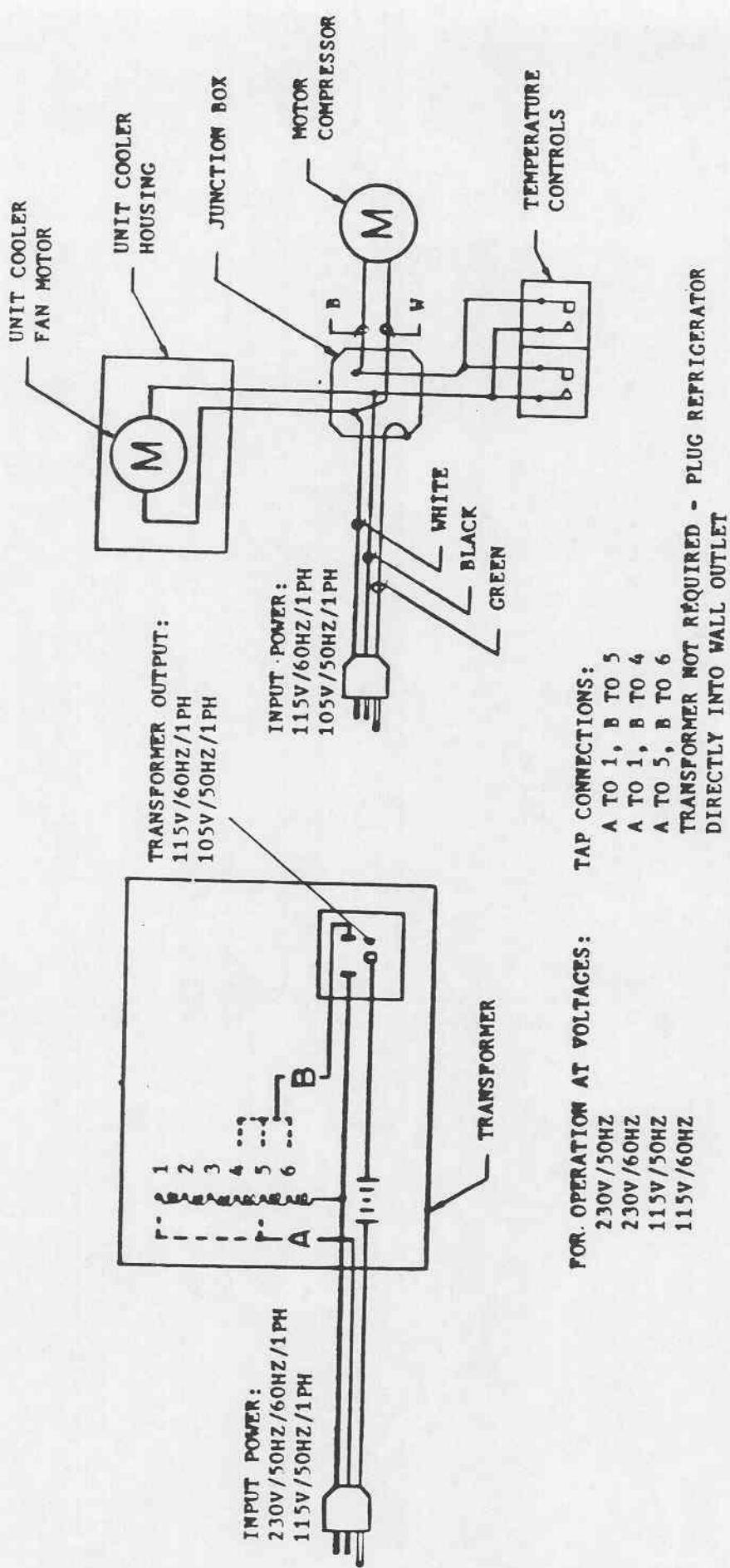
CONSISTS OF: 3 DIVIDERS 19 1/4" LG.
7 DIVIDERS 17 7/8" LG.

FIG.-5

⑯ DRAWER DIVIDERS



②0 CONDENSATE EVAPORATOR



LBLO17

FIG.-7

SCHEMATIC WIRING DIAGRAM

CT 1-1B-06

STORAGE INSTRUCTIONS

If these refrigerators are to be stored, they must be kept in a controlled environment. Indoor storage is required with the temperature kept within a range of -20°F. to + 120°F. (-29°C. to 49°C.).

Extended storage time may have an affect on the batteries located in the temperature monitor, as batteries have a limited shelf life. These batteries are of the rechargeable type and are automatically charged when the temperature monitor is on. If after 45 to 50 hours of use the batteries fail to hold a charge, they must be replaced with fresh batteries.

The only other component that may be affected by extended storage would be the pen arm located in the recording thermometer. After prolonged storage the pen arm may dry out and require replacement.

TEMPERATURE/POWER MONITOR

MODEL: TPM 1000-1B

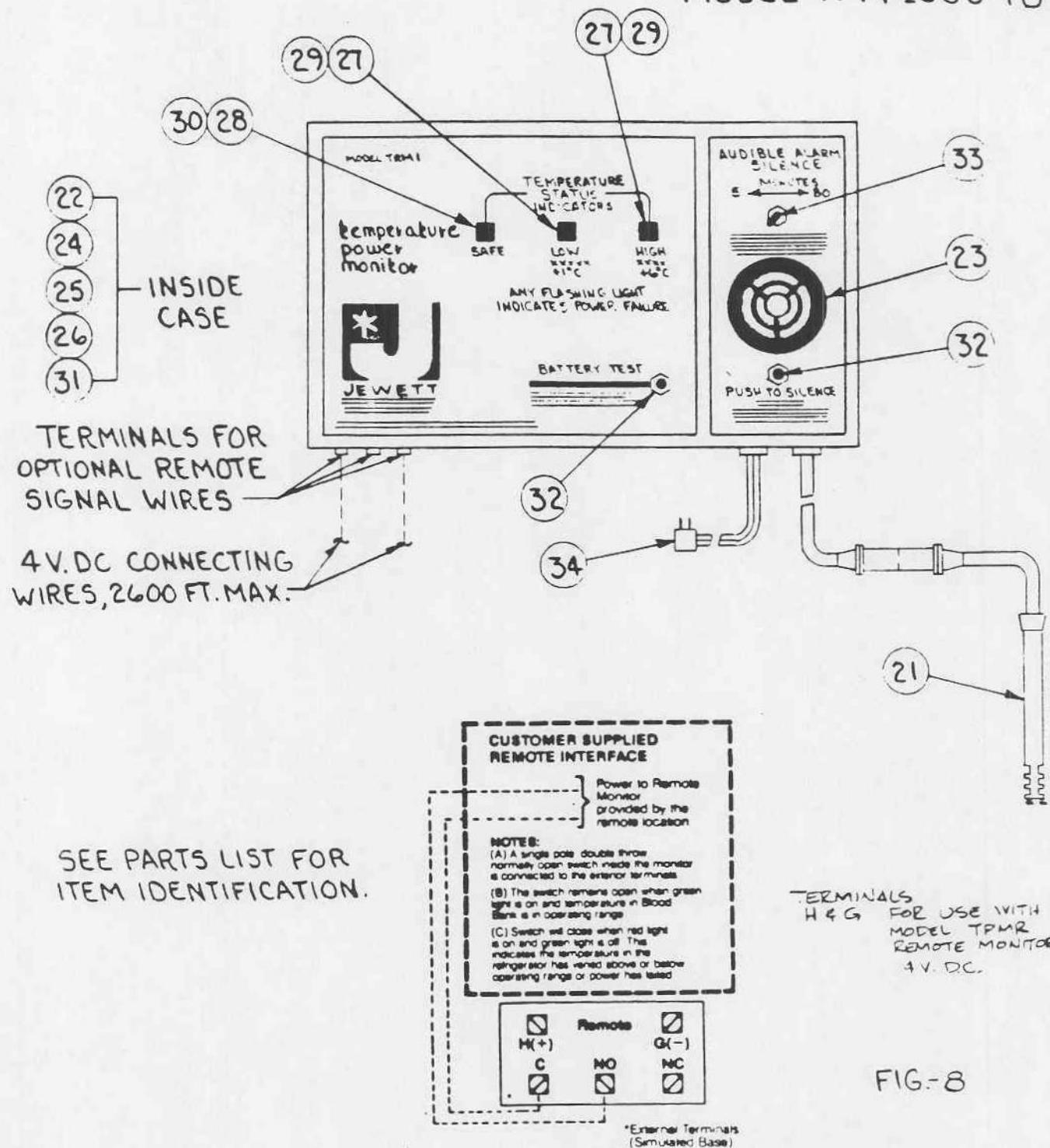


FIG.-8

(FOR TEMPERATURE/POWER MONITOR - MODEL TPM1000-1B)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M U/I</u>
21	32011	MOD-M0002	THERMOSTAT ASSY. (+1° TO +6°C)	1	EA.
22	32011	MOD-M0021	BATTERY PACK ASSY. 5VDC	1	EA
23	32011	MON-M0001	AUDIBLE DEVICE	1	EA
24	32011	MON-M0024	CIRCUIT BOARD ASSY.	1	EA
25	32011	MON-M0025	CIRCUIT, INTEGRATED, XR2240	1	EA
26	32011	MON-M0026	CIRCUIT, INTEGRATED, XR7555	1	EA
27	32011	MON-M0027	LAMP, LED, RED	2	EA
28	32011	MON-M0028	LAMP, LED, GREEN	1	EA
29	32011	MON-M0029	LENS, SQUARE, RED	2	EA
30	32011	MON-M0030	LENS, SQUARE, GREEN	1	EA
31	32011	MON-M0031	RELAY, DPDT 12VDC	1	EA
32	32011	MON-M0032	SWITCH, PUSH BUTTON	2	EA
33	32011	MOD-M0011	SWITCH, TOGGLE, SPDT	1	EA
34	32011	MON-M0035	TRANSFORMER 115/12 VAC	1	EA

JEWETT TEMPERATURE POWER MONITOR TPM1000-1B

System Familiarization

The Jewett Temperature Power Monitor system is designed to continuously monitor temperature and power supply for blood and other controlled temperature storage. When an improper temperature is reached or the power supply is interrupted, the TPM system provides a visible and audible signal. It is designed to provide a different visible and audible signal for each type of problem so that you can determine the condition that caused the alert. A chart of these signals is included in this manual for easy reference. A copy of it should also be kept on hand at the station where 24-hour monitoring of the unit will take place.

Equipped with rechargeable nickle-cadmium (nicad) batteries, the TPM operates on AC power and maintains a full charge on its batteries through a trickle charge system. In the event of a power failure, the TPM uses its battery power to continue operating and to monitor the problem.

The TPM system comes standard with a feature that allows it to be easily connected to a master remote station.

The TPM is factory preset at $+1^{\circ}\text{C}$ to $+6^{\circ}\text{C}$ with accuracy to within $\pm .2^{\circ}\text{C}$.

The TPM system operates on standard 115-60-1 AC current. To operate at a different power supply, plug unit into outlet provided on transformer in mechanical compartment of refrigerator.

TPM FOR CUSTOMER SUPPLIED REMOTE LOCATION EQUIPMENT INTERFACE

Jewett TPM Series Monitors include as standard equipment three external terminals which are the Common, the Normally Open and the Normally Closed Dry contacts of a hermetically sealed relay. The relay is energized when all conditions are safe and de-energized when any unsafe condition occurs. The current-carrying capability of this relay is 1 ampere at 115VAC (resistive) or 1 ampere at 28VDC (resistive). This feature permits the TPM monitor to be connected to a master remote monitoring station that has its own source of power.

INSTALLATION INSTRUCTIONS - TPM SERIES

1. The monitor is to be used with the Jewett Blood Bank Refrigerator. Locate the access hole on rear of cabinet and mounted bracket, with solution bottle inside the refrigerator on the back wall.
2. The monitor can be wall mounted within 5' of this access hole.
3. Select audible silencing time period of 5 or 80 minutes and set TIME SELECTOR switch.
4. Assemble quick disconnect plug to temperature sensor by aligning indicator provided on each section of receptacle. This completes the temperature sensing circuit and activates the battery system. Press "push to silence" switch to initiate selected silence period.
5. Insert the sensor through access hole and position in solution bottle
6. Seal access hole with sealing compound. The top of solution bottle should also be sealed to prevent evaporation.
7. Position the monitor case as desired and plug into the same circuit as the refrigerator so that if power failure occurs, the monitor will sound immediately using battery power. For 115/50 or 230/50/60 plug monitor into receptacle provided on transformer located in mechanical space.

OPERATIONAL DATA

1. When the temperature is safe and AC power condition is normal, the green light is on constantly, the red lights are off and the audible warning system is silent.
2. To test the battery power, press the battery test button and the audible alarm signal will sound with a short on and a long off. The green light will pulse with a short on and a long off indicating that the temperature is still safe but there has been a power "failure".
3. If an improper temperature is reached, the audible alarm will signal a long on and a long off, the green light will go off and the appropriate red light will signal a constant on. To silence the audible signal, press the "push to silence" button. The red light will remain on until temperature returns to normal. When the proper temperature is reached, the red light will go off and the green light will come on.
4. Electrical power failure: Under normal conditions, the TPM will operate on standard house current. However, in the event of a power failure, the monitor will signal in the same way as it did for the battery test procedure as long as the temperature remains in the "safe" range. As soon as an improper temperature is reached, the audible signal will change to a short on and short off, and the red light indicating the appropriate temperature condition will pulse with a short on and short off. During the power failure, the TPM will maintain all monitoring functions.
5. Under normal operating conditions, the TPM monitor functions on AC current and maintains its batteries at full charge by an automatic trickle charge system. After a power failure, the batteries will recharge while the monitor is operating; but recharging from no charge to full charge can take approximately 50 hours.
6. Audible silencing feature: Set TIME SELECTOR switch to desired time period (either 5 minutes or 80 minutes). Depress SILENCING button. Audible signal is silent for selected time period.

GUIDE TO THE TPM WARNING SYSTEM

What the Visible and Audible Signals
on the TPM and TPMR Indicate

Temperature Safe	Status Indicators	Visual	Audible Alarm	Condition of AC or Battery Power	Condition of Temperature
ON	OFF	OFF	Silent	Normal	Safe
OFF	ON	OFF	Long ON Long OFF	Normal	Above high limit.
OFF	OFF	ON	Long ON Long OFF	Normal	Below low limit.
Short ON	OFF	OFF	Short ON Long OFF	Failure	
Long OFF	OFF	OFF	Short ON Short OFF	Failure	
OFF	OFF	OFF	Short ON Short OFF	Failure	Above high limit.
OFF	OFF	OFF	Short ON Short OFF	Failure	Below low limit.

Reset instructions: To silence the audible signal, press the "push to silence" button. The red light will remain on until temperature returns to normal. When the proper temperature is reached, the red light will go off and the green light will come on. To reset the audible silencing feature flip the TIME SELECTOR toggle switch back and forth and then position to the desired time period (either 5 or 80 minutes). Depress SILENCING button. Audible signal is silent for selected time period and automatically re-activated when an unsafe temperature condition occurs.

FIG. 9



7-Day Recording Thermometer

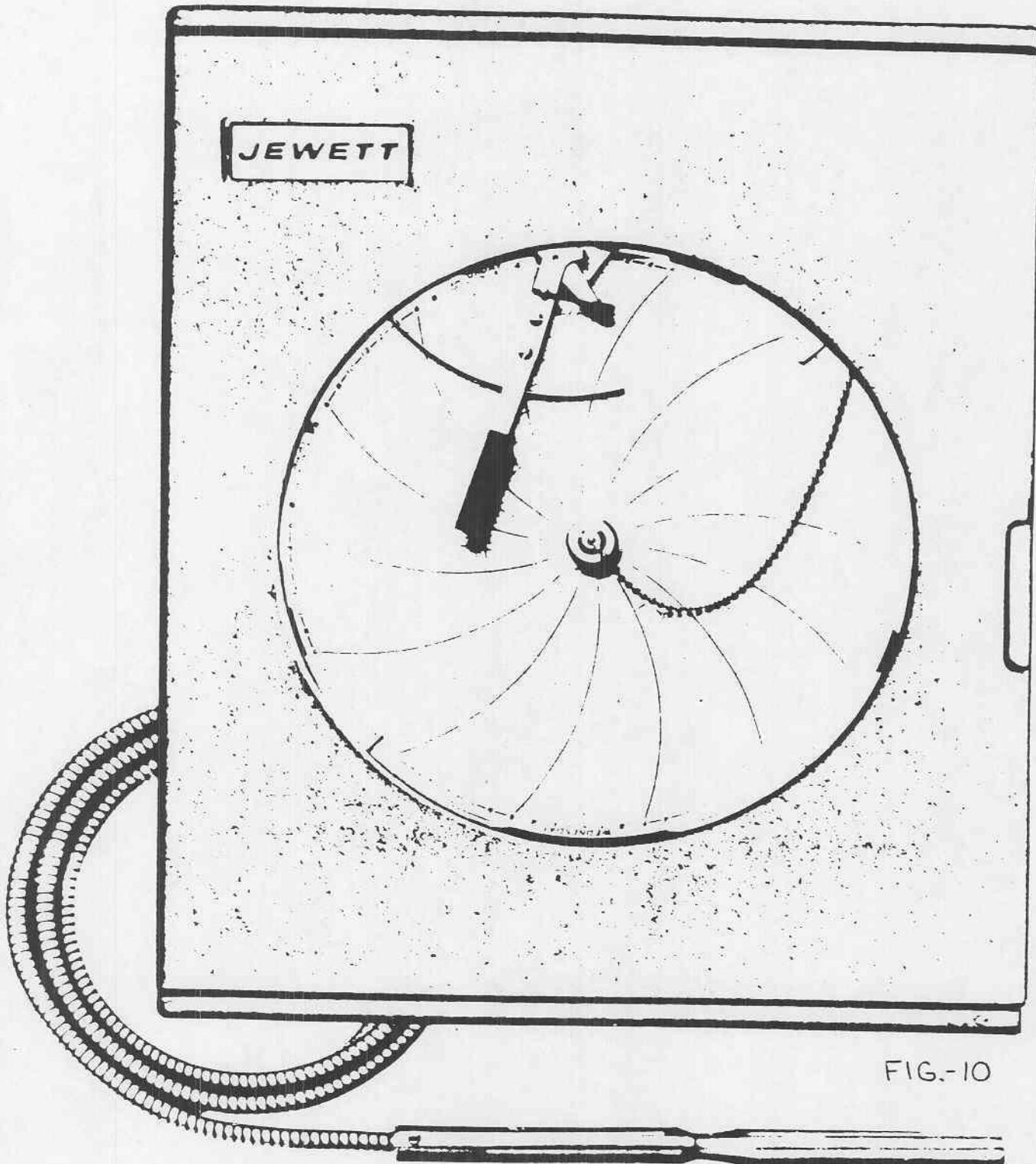


FIG.-10

Model 8GR1WBR for Refrigerators

GENERAL INFORMATION

The Jewett 7-day Recording Thermometer is a sensitive and specially designed instrument for keeping permanent and accurate blood temperature records. It provides uninterrupted observation of stored blood temperatures pathologists require to determine the extent of damage that can be caused by temperature fluctuations. They can then decide whether the blood can still safely be used. This is a necessary feature for modern blood banks in answering any technical or legal questions that may arise.

The Jewett Recording Thermometer records in Celsius readings.

This 7-day spring-wound instrument features the Mark-a-Matic II continuous flow inking system. Each fiber-tipped pen has its own sealed, specially formulated ink supply and provides up to 8 months of fine line temperature recording. This pen has a sealed, self-contained ink supply that is specially formulated to insure continuous flow without skipping or blotting. The flexible stainless steel pen arm easily inserts into pen and is attached to the recording thermometer by two screws. A temperature sensitive stainless steel encapsulated sensor is immersed in liquid. In the event of a power failure, there is a complete record of the rise of temperature while the current is off, as well as its fall with the restoration of power. The unit is furnished with 100 8-inch centigrade charts.

STANDARD FEATURES

Jewett offers a recording device that features:

- Mark-a-Matic inking system.
- Stainless steel sensor.
- Stainless steel armoured capillary cable.
- 7-day spring-wound mechanism. Insures continuous record of temperature fluctuations in event of power failure.
- Continuous accurate record-keeping on quick, easy-to-read charts.
- 100 8" (203 mm) charts supplied with each recorder.
- Chart number RDR019 charts (12°C to 43°C).

GENERAL INFORMATION

- A. Read instructions carefully before installing the instrument.
- B. The recorder is shipped with the following accessories.
 - One box of 100 charts
 - One chart drive winding key
- C. When ordering replacement parts, refer to the part name and number in the parts list. Always specify model and serial number when ordering.

This instrument is guaranteed to function under all normal conditions. With proper care it will render lasting accurate service.

INSTALLATION

If possible, select a well lighted location that is free from dust, dirt, corrosive fumes and vibration. The instrument case must be vertical and level. The instrument case is provided with three mounting lugs for wall or flush mounting. See Fig. 12 on page 27 for mounting dimensions. The instrument should be located so that it will not be subjected to sudden or extreme temperature changes. Do not place the recorder case or any part of the tubing near steam pipes, furnaces or other heated surfaces.

CAPILLARY TUBING

Avoid bending the tubing sharply. It is suggested that all excess tubing be coiled and installed close to the wall directly under or as near to the case as is possible.

CALIBRATION

This recorder has been accurately calibrated at the factory. Before making any adjustments, the instrument should be in operation for at least 48 hours. Thereafter, should any adjustment be necessary, check the recorder's temperature readings against an accurate test thermometer.

This is done by placing the bulb of the test thermometer alongside the bulb of the recorder, in a well agitated liquid bath. Then compare the readings after the bulbs have been held in the bath for five (5) minutes. If the recorder does not check with the test thermometer, correction can be made by means of the adjusting screw at the upper right of the pen arm. If sufficient correction cannot be obtained in this manner, it is recommended that the factory be notified, giving exact details including model and serial number. Do not ship the recorder back to the factory for readjustment or repair without written authorization from the factory.

CHART DRIVE (MECHANICAL)

Wind the chart drive each time when changing the chart. With the chart removed, insert the winding key through the hole in the chart plate and wind arbor in the direction indicated by the arrow on the plate. DO NOT OVERWIND. An observation cutout has been provided in the chart plate to observe the balance wheel to ascertain whether the chart drive is operating. Be sure on/off switch located under chart plate is in the "on" position.

(continuation)

If the chart does not start after winding, reinsert the key and release suddenly after winding the chart drive fully. Repeat if necessary.

PEN LIFTER

A pen lifter has been provided to raise the pen off the chart whenever required. The pen is raised by pulling on the metal tab located at the upper left-hand corner of the chart plate. The pen is lowered by depressing the tab.

RENEWAL OF CHARTS

Raise the pen lifter as far as it will go. This will provide approximately 1/2" (13 mm) of clearance for the removal of the chart. To remove the chart, unscrew the knob at the center of chart. Position the new chart so that the correct time line coincides exactly with the red pointer on the chart plate. Then replace center chart knob and screw tightly against chart. Lower pen gently onto chart by depressing pen lifter fully. A small dot of ink appearing where the pen point touches the chart will indicate that the pen will trace properly.

INKING PEN

The pen system consists of a self-contained ink reservoir with a porous plastic stylus which is slipped onto the outboard end of the pen arm, firmly. Two screws are provided at the upper end of the pen arm to provide adjustment of its length so that the pen tracks the time line on the chart. Check this after each replacement of the pen and adjust accordingly. Remove colored cap. If stylus does not quite touch the chart, adjustment can be made by slightly bending the pen arm in the center. Do not have more pressure than necessary to make a fine line.

NOTE: AS THE INK SUPPLY NEARS EXHAUSTION, THE INK COLOR BECOMES LIGHTER. THIS INDICATES THAT THE PEN SHOULD BE REPLACED.

REMOVAL OF CHART PLATE

To remove the chart plate, insert index fingers into the openings at the lower left and right hand corners of the chart plate. Press upward against the top of the spring loaded chart plate posts with thumbs and lift the chart plate off the posts. Push the chart plate towards the top of the recorder and remove.

To replace chart plate, position the openings at the upper edge of the chart plate on the upper chart plate posts. This will locate the chart plate correctly over the lower plate posts. Then snap it into position by depressing lower edge.

INSTALLATION INSTRUCTION

Your Jewett blood bank refrigerator has been equipped at the factory for ready installation of the temperature recorder. An access port has been provided in the cabinet to accommodate passage of the recorder sensor bulb. The blood bank refrigerator (+4°C) has a bracket supplied with a polyethylene bottle mounted on the cabinet interior. Remove gray sealer (permagum) from the white access port. Fill the bottle with a solution of 10% glycerin in water and install in bracket. Insert sensor bulb through access port into plastic bottle, making certain that the lower 4" (102 mm) is completely immersed. Repack both ends of access port with the sealer. To prevent evaporation of liquid, seal top of bottle with cap provided. Mount instrument on wall or other solid support.

7-DAY RECORDING THERMOMETER
MODEL: 8GRIWBR

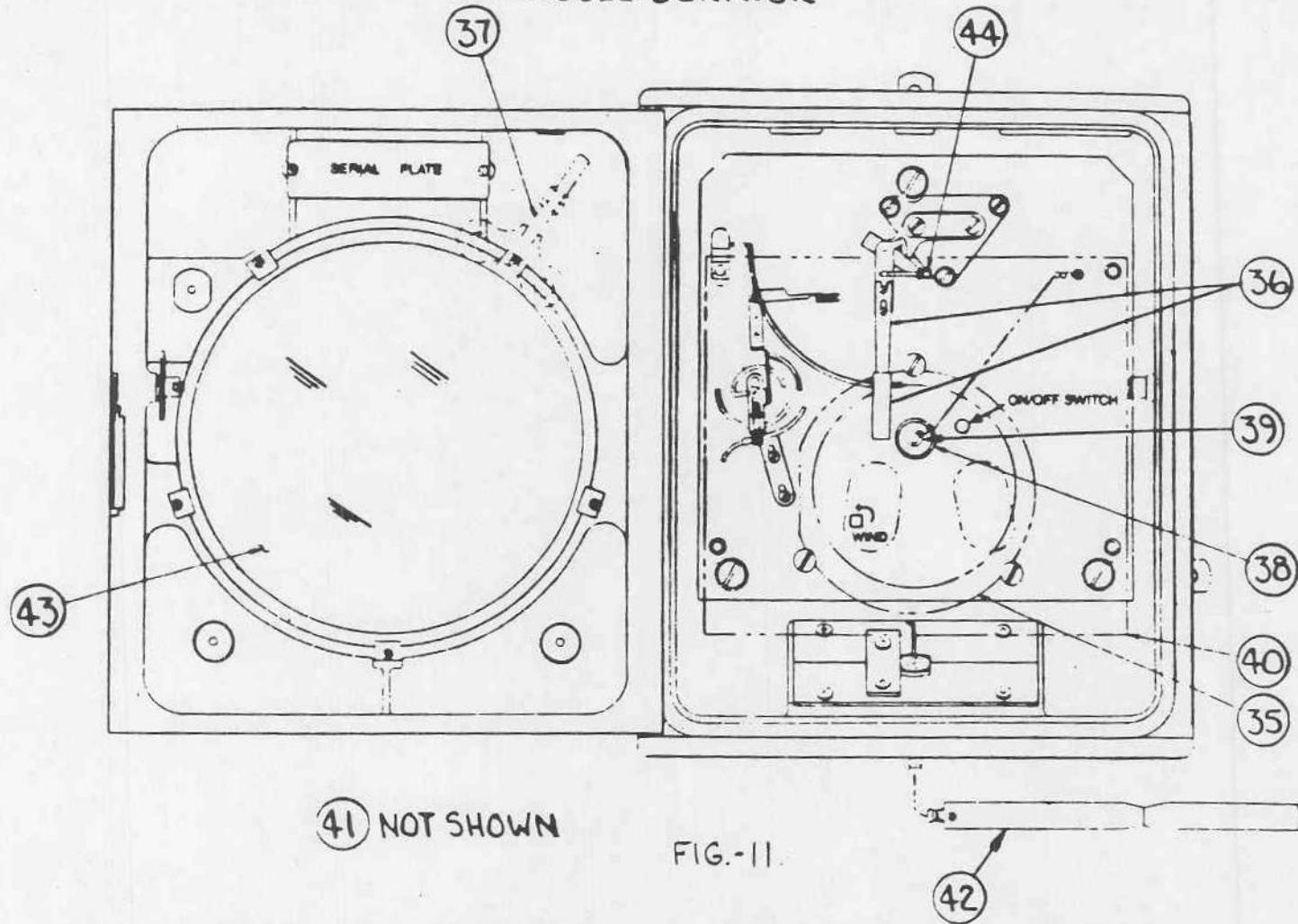
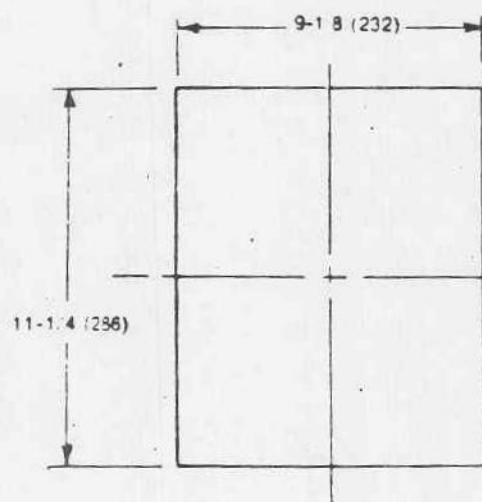


FIG.-11.

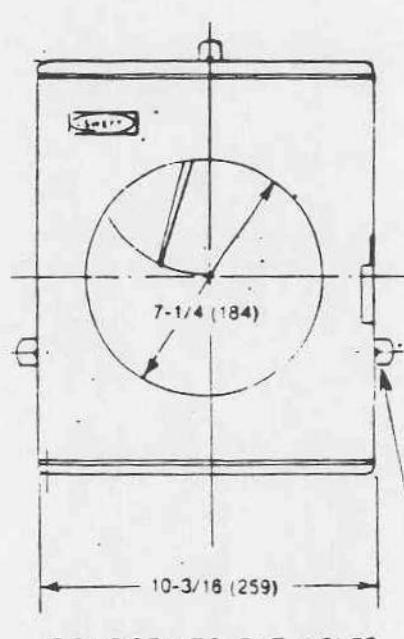
RECORDER CASE DIMENSIONS (Inches shown, mm in parentheses)

Overall case size is 10-1/8 (257) wide x 12-3/8 (314) high x 4-15/16 (125) deep.

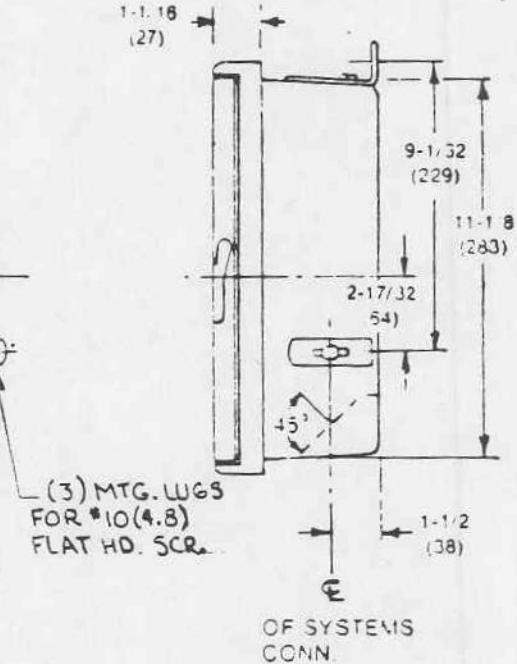


PANEL CUTOUT

SEE PARTS LIST FOR
ITEM IDENTIFICATION.



ETC OF MTG. BKT. HOLES



OF SYSTEMS
CONN

(FOR RECORDING THERMOMETER - MODEL 8GRIWBR)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M U/I</u>
35	32011	RDR010	CHART DRIVE - 7 DAY SPRING WOUND	1	EA
36	32011	RDR024	MARK-A-MAGIC II KIT CONSISTING OF: (6) DISPOSABLE PENS (1) PEN ARM	1	EA
37	32011	RDR027	KEY, WINDING, CHART DRIVE	1	EA
38	32011	RDR013	KNOB, CHART WITH BEADED CHAIN	1	EA
39	32011	RDR006	HUB, CHART	1	EA
40	32011	RDR044	PLATE, CHART	1	EA
41	32011	RDR019	CHART (J7-12+43-8)	100	BX
42	32011	RDR005	THERMAL SYSTEM (-12-+43°C)	1	EA
43	32011	RDR003	GLASS, DOOR	1	EA
44	43011	RDR007	SCREW, MICROMETER ADJUSTMENT (PEN ARM)	1	EA

COMMERCIAL MAINTENANCE MANUAL

NSN: 4110-01-249-4476

REFRIGERATOR, MECHANICAL
BIOLOGICAL, BLOOD BANK

120 / 230 VOLT
50 / 60 HZ. A.C.

THE JEWETT REFRIGERATOR CO.
2 LETCHWORTH STREET
BUFFALO, NEW YORK 14213

CONTRACT NO. DLA120-87-C-8514

MODEL NO: CTI-1B-06

1987

PRF 105

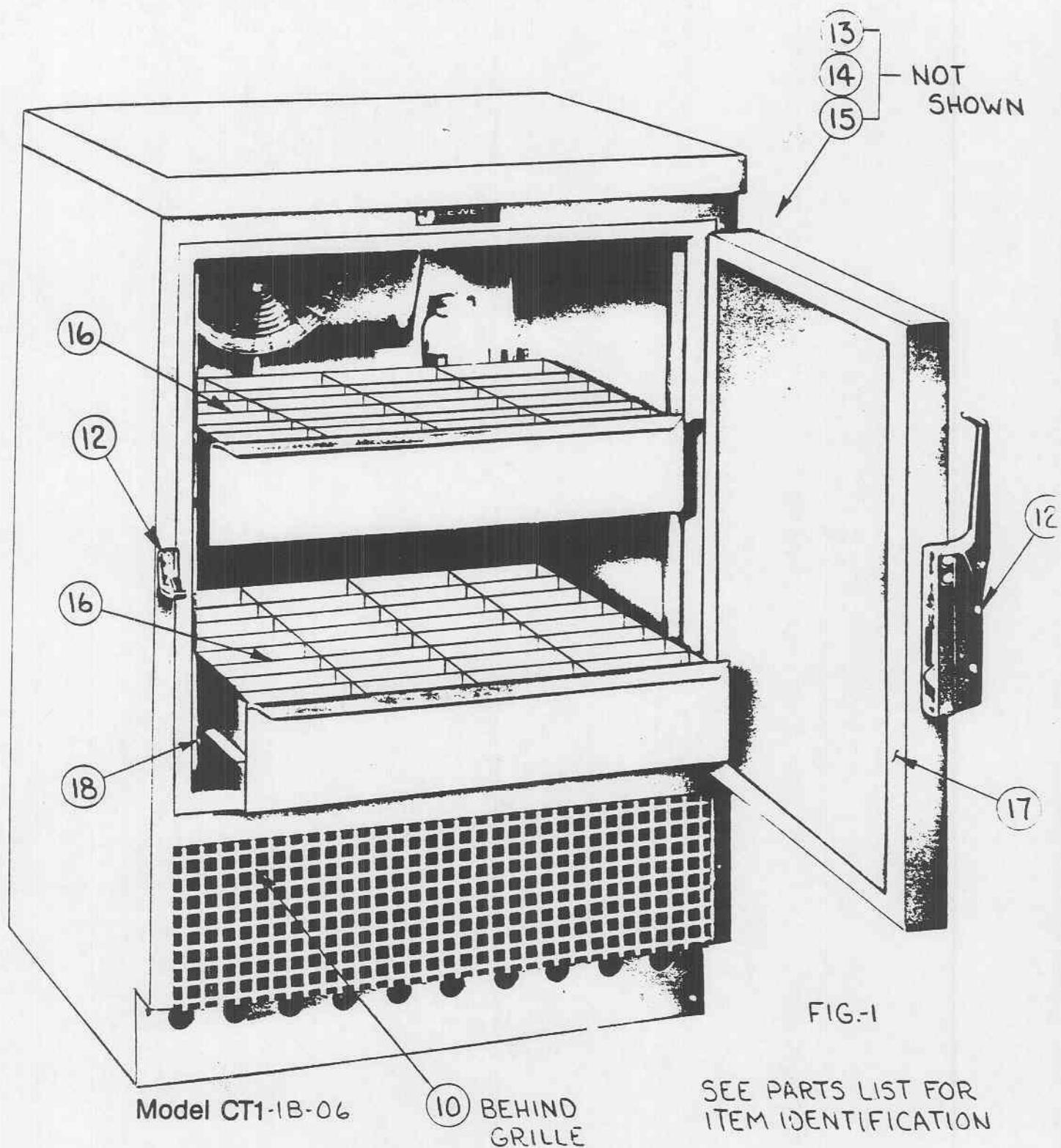
TABLE OF CONTENTS

MAINTENANCE MANUAL

<u>PAGE</u>	<u>DESCRIPTION</u>
1	Pictorial View Refrigerator (Fig. 1)
2	Cabinet Dimensions/General Specifications (Fig. 2)
3	General Information/Equipment provided
4	Installation Instructions
5	Operating Instructions
6	Theory of Operation/Basic Refrigeration Cycle (Fig. 3)
7	General Maintenance Instructions/Door Gasket Replacement Instructions
8	Setting Temperature Control
9	Temperature Control Drawing (Fig. 4)
10	Hinge and Latch Adjustment Instructions Hinge Details (Fig. 5) Latch Details (Fig. 6)
11	Drawer Installation/Removal (Fig. 7)
12	Condensate Evaporator Assembly (Fig. 8)
13-14	Condensing Unit Data Sheet - Condensing Unit (Fig. 9) - Schematic (Fig. 10)
15-16-17	Unit Cooler Data Sheets - Basic Cooler (Fig. 11) - Complete Part Locations (Fig. 12)
18	Drawer Dividers Assembly (Fig. 13)
19	Mechanical Component Parts Locations Front View (Fig. 14) Rear View (Fig. 15)
20	Schematic Wiring Diagram (Fig. 16)
21	Storage Instructions
22	Replacement Parts List - Refrigerator
23-24-25	Trouble Shooting Guide (SR738-1,2,3)
26	TPM1000-1B Temperature Monitor Pictorial View (Fig. 17)



Compact Counter-top Blood Bank

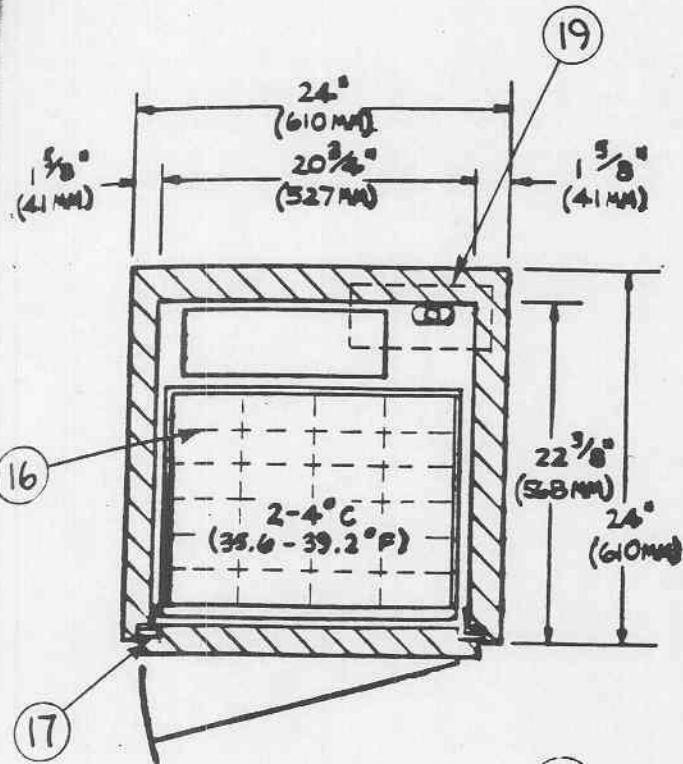


Model CT1-1B-06

10 BEHIND
GRILLE

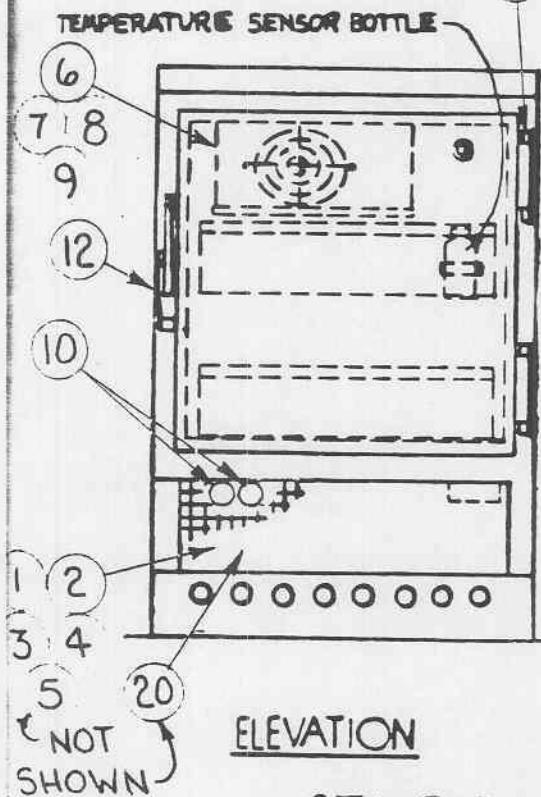
SEE PARTS LIST FOR
ITEM IDENTIFICATION

GENERAL SPECIFICATIONS



EXTERIOR: FRONT, SIDES, REMOVABLE TOP:
 20 GA. TYPE 304, POL. STA. STL.
INTERIOR: CABINET TOP, BACK, & BOTTOM: 20 GA. GALV.
 20 GA. TYPE 304, 28 STA. STL.
INSULATION: 1 1/2" POLYURETHANE - VAPOR SEALED
GASKET: EXTRUDED VINYL w/NEOPRENE THERMO-BREAK AT DOOR OPENING
HARDWARE: EDGEMOUNT TYPE, ADJUSTABLE, CHROME-PLATED
DRAWERS: (2) 18 GA., STA. STE. w/ SOLID BOTTOM & w/ DELRIN ROLLERS
CONTROLS: DUAL, SET TO OPERATE 2 TO 4°C (35.6 TO 39.2°F)
COOLING UNIT: BLOWER COIL, AUTO. OFF, CYCLE DEFROST
COND. UNITS: 1/5 H.P., HERMETICALLY SEALED
ELECTRICAL DATA:
 AVAILABLE ON REQUEST: 220/50/1, 1.7A
CAPACITY: 5.4 CU.FT.
 450 ML. BAG CAPACITY — 60
 500 ML. BOTTLE CAPACITY — 48
SHIPPING WEIGHT: DOMESTIC — 210 LBS. (95 KG.)
 EXPORT — 250 LBS. (113 KG.)

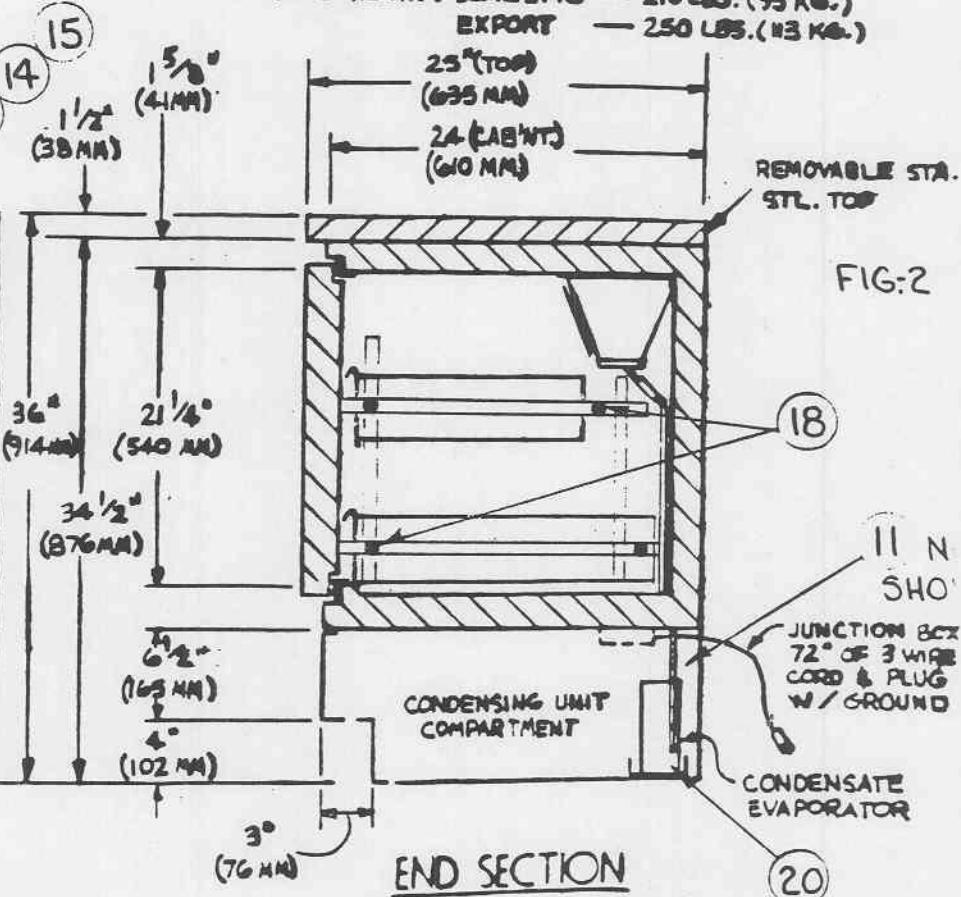
PLAN SECTION



ELEVATION

SEE PARTS LIST FOR
ITEM IDENTIFICATION.

PRF105-2



END SECTION

CT-1-1B-06 BLOOD BANK REFRIGERATOR

ADDITIONAL EQUIPMENT SUPPLIED:

- TPM 1000-1B TEMP. MONITOR
- 8GRIWBR RECORDING THERMOMETER
- SR1910-1 DWR. DIVIDERS

GENERAL INFORMATION

Each Jewett Refrigerator is a complete packaged unit ready to operate when connected to electric power lines. It is not necessary to have a refrigeration serviceman place the unit in service. Each refrigerator has been given a 48-hour test prior to shipment. Read all the instructions first before proceeding with the installation.

This blood bank refrigerator has been designed and engineered in keeping with the recommended standard temperature requirements established by the American Association of Blood Banks, the American National Red Cross and the Food and Drug Administration.

This blood bank refrigerator is equipped with the following items:

EQUIPMENT PROVIDED

1. TPM1000-1B temperature/power monitor
2. 8GR1WBR record thermometer
3. SR1901-1 drawer dividers
4. Dual Voltage/Cycle transformer

See sections on Monitor and Recording Thermometer for information on these items.

INSTALLATION INSTRUCTIONS

1. Move the refrigerator into the desired location, making sure the bottom of the refrigerator is evenly supported. If the cabinet sets on an uneven floor, a slight rocking or vibration might result when the condensing unit is set in operation. Thin shims under the points of rest can be used to equalize the distribution of weight.
2. Inspect the interior and exterior of the refrigerator including mechanical equipment. Be sure that all packing and crating materials have been removed. Pay attention to any instruction tags fastened at various points.
3. Condensate Evaporator is located in the machinery space, eliminating the necessity for a floor drain. Install fiberglass plates in pan per Fig. 8 Pg. 12. Make sure power cords do not come in contact with water in pan.
4. The hermetic sealed condensing unit (1/5 HP) is shipped with all service valves open and ready for operation. Do not adjust valves. The unit is set to operate on 115 volts, 60 cycle, alternating current, without the use of the transformer.

To use the unit on 115 volt/50 cycle or 230 volt/50/60 cycle, alternating current, the refrigerator power cord and monitor power cord must be plugged into the transformer. Adjust internal jumpers in transformer as follows:

230V/60 HZ - A TO 1
- B TO 4

230V/50 HZ - A TO 1
- B TO 5

115V/50 HZ - A TO 5
- B TO 6

CAUTION: DO NOT OPEN COVER OF TRANSFORMER WHEN CONNECTED TO POWER SOURCE
HAZARDOUS VOLTAGES INSIDE. Then plug transformer into power source.

5. Make certain that cabinet is located so front grille opening is unobstructed.
6. All controls have been checked and adjusted at the factory. After the cabinet has been set in operation, allow the refrigerator several hours to cool the cabinet interior and insulation as well as the product load. Apparent erratic operation on initial start-up does not necessarily indicate that the mechanism is faulty. After the mechanism has been allowed to bring the refrigerator down to normal operating temperature, the unit will cycle regularly.
7. Every effort has been made to use standard parts throughout the refrigerator. Therefore, most parts of the refrigerating system can be obtained at any refrigeration supply dealer and can be repaired, serviced or replaced by any competent service company.
8. See sections on Monitor/Recording Thermometer for installation instructions on these items.

OPERATING INSTRUCTIONS

CAUTION: MAKE SURE TRANSFORMER IS SET UP FOR PROPER ELECTRICAL VOLTAGE & FREQUENCY BEFORE PLUGGING IN UNIT

- 1) REFRIGERATOR IS DESIGNED TO OPERATE AT 115/230V - 50/60HZ - 1 PHASE POWER. OPERATION AT ANY OTHER POWER MAY CAUSE PERMANENT DAMAGE TO MECHANISM. SEE LABEL AT REAR MOUNTED TRANSFORMER FOR INSTRUCTIONS ON ADJUSTMENTS TO SUIT AVAILABLE VOLTAGE & FREQUENCY.
- 2) THE COOLING COIL FAN RUNS CONTINUOUSLY. THE COIL DEFROSTS AUTOMATICALLY ON COMPRESSOR OFF CYCLE.
- 3) DUAL TEMPERATURE CONTROLS ARE FACTORY SET TO OPERATE ON 36°F TO 40°F AIR TEMPERATURE. IF ONE CONTROL IS CHANGED, THE SECOND CONTROL MUST BE CHANGED ACCORDINGLY.
- 4) CLEAN THE FAN COIL OF THE CONDENSING UNIT PERIODICALLY. ALSO CLEAN THE INTERIOR CABINET AND DRAWERS OFTEN, USING WARM WATER AND A GOOD FUNGICIDAL DETERGENT.

This unit is equipped with dual controls and operates at +2° to 4°C (36°F to 40°F). The second temperature control has been installed for extra protection against temperature failures. If one temperature control should fail to close, the second temperature control automatically takes over. If the setting of one temperature control is changed, the second control must be changed accordingly. A reliable serviceman should inspect the controls yearly to assure that both are in good condition. These controls have been factory preset. See Maintenance Section for resetting information. This unit is designed for continuous operation.

To start or stop refrigerator, unplug refrigerator or transformer for power source.

For operation of monitor/recording thermometer, see applicable sections.

THEORY OF OPERATION

THE BASIC REFRIGERATION CYCLE

HIGH (PRESSURE) SIDE

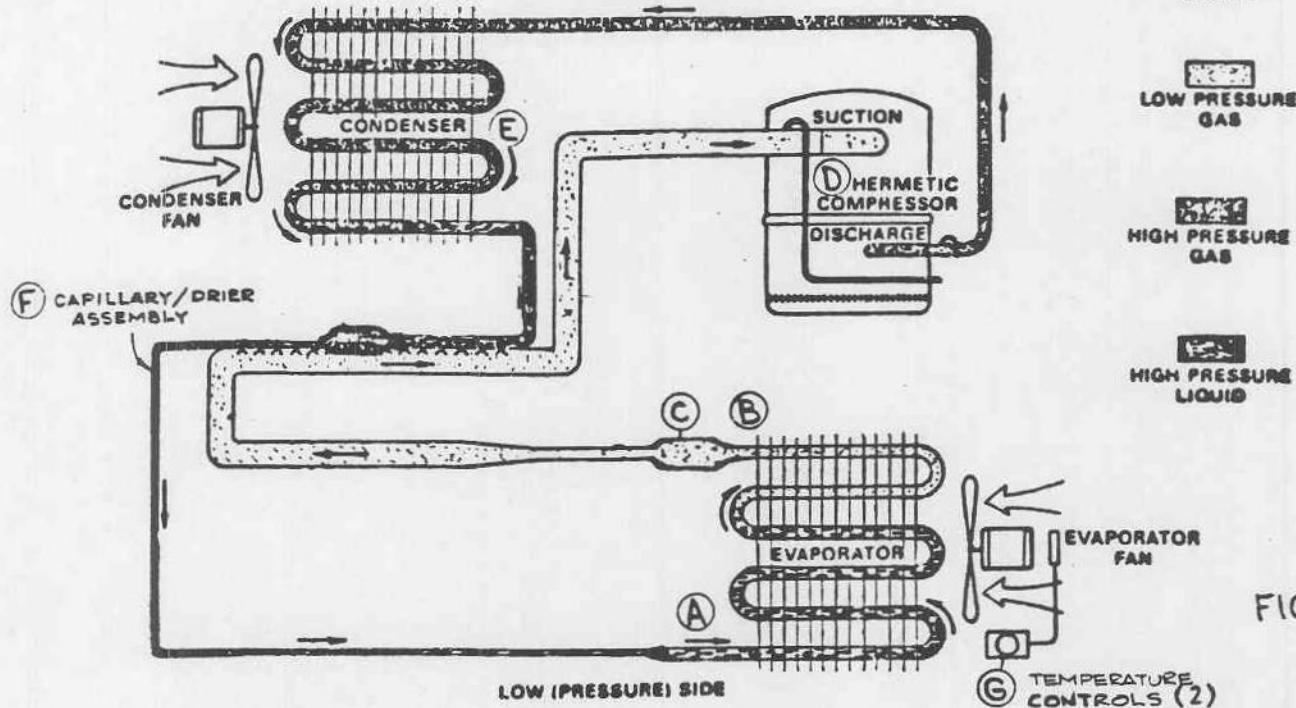


FIG.-3

Mechanical refrigeration is accomplished by continuously circulating, evaporating, and condensing a fixed supply of refrigerant in a closed system. Evaporation occurs at a low temperature and low pressure while condensation occurs at a high temperature and pressure. Thus, it is possible to transfer heat from an area of low temperature (i.e., refrigerator cabinet) to an area of high temperature (i.e., Lab Room).

Beginning the cycle at the evaporator inlet (A) the low pressure liquid expands, absorbs heat, and evaporates, changing to a low pressure gas at the evaporator outlet (B).

The compressor (D) pumps this gas from the evaporator through the accumulator (C), increases its pressure, and discharges the high pressure gas to the condenser (E). The accumulator is designed to protect the compressor by preventing slugs of liquid refrigerant from passing directly into the compressor. An accumulator should be included on all systems subjected to varying load conditions or frequent compressor cycling. In condenser (E) heat is removed from the gas which then condenses and becomes a high pressure liquid.

As the high pressure liquid refrigerant enters the evaporator (A) it is subjected to a much lower pressure due to the suction of the compressor and the pressure drop across the capillary/drier assembly (F). Thus, the refrigerant tends to expand and evaporate. In order to evaporate, the liquid must absorb heat from the air passing over the evaporator.

Eventually, the desired air temperature is reached and the temperature control (G) will break the electrical circuit to the compressor motor and stop the compressor.

As the temperature of the air through the evaporator rises, the temperature control remakes the electrical circuit. The compressor starts, and the cycle continues.

GENERAL MAINTENANCE INSTRUCTIONS

1. To protect the cabinet finish as well as the product, the refrigerator should be cleaned often using luke warm water and a good fungicidal detergent to eliminate air borne low temperature growing organisms.
2. The drawers should also be wiped occasionally to prevent the accumulation of any foreign matter. The drawer rollers do not require any lubrication.
3. The fan in the blower coil operates continuously and needs no lubrication.
4. The condensing unit in the bottom of the cabinet is completely sealed and needs no oiling or other lubrication. However, the finned condensing unit through which air passes can become clogged with lint and other foreign substances in the air. The openings between the fins should be cleaned of lint every few months. A small test tube brush works well for this purpose.
5. An annual inspection of the mechanical refrigerating equipment by a competent service man is recommended, as a mechanic can frequently make adjustments which prevent a breakdown in the future.
6. The refrigeration system is charged with 7 ounces of Freon F-12. If the system is opened for any reason, extreme care should be taken to prevent the entry of moisture-bearing air and a good drier should be installed in the lines when the system is again closed.

See sections on Monitor/Recording Thermometer for information on these items.

DOOR GASKET REPLACEMENT INSTRUCTIONS

1. It is recommended that door be removed from cabinet and laid in a flat position, to ease removal and replacement of gasket steps for this operation are listed above.
2. Remove screws holding inner door metal and gasket. Note position of door metal before lifting off, to assure proper alignment of screwholes.
3. Replace old gasket with new gasket, slide inner door metal into position and align screwholes. Adjust gasket so that it fits within the edge of the exterior door pan.
4. Inner door metal can now be secured in place and door remounted on cabinet.
5. Check for proper gasket seal and ease of operation. Should any adjustments be required, follow procedures listed on Fig. 5 & 6, Page 10

INSTRUCTIONS FOR SETTING CUTLER HAMMER CONTROL
OF JEWETT REFRIGERATORS

OPERATION: Cutler Hammer Control CTL001 is a single pole, single break switch with snap acting toggle that CLOSES the circuit on INCREASE & OPENS the circuit on DECREASE in temperature.

"OFF-ON" SWITCH: Turn dial knob "Counter-clockwise" to reach "OFF" position.

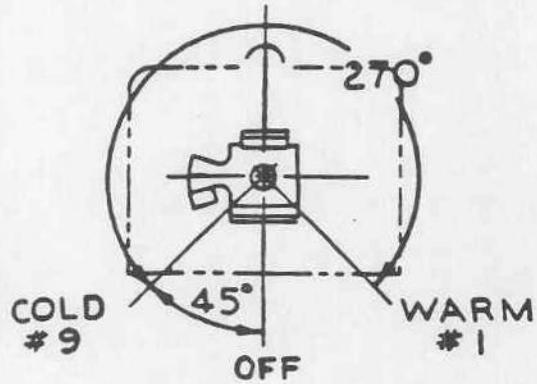
DIAL KNOB: Turning the cam WITH THE DIAL KNOB changes the "cut-out" setting only. Changing the dial knob positions DOES NOT CHANGE THE CUT-IN SETTING.

TURN DIAL KNOB: "Counter-clockwise" for WARMER "Clockwise" for COLDER OPERATION range setting.

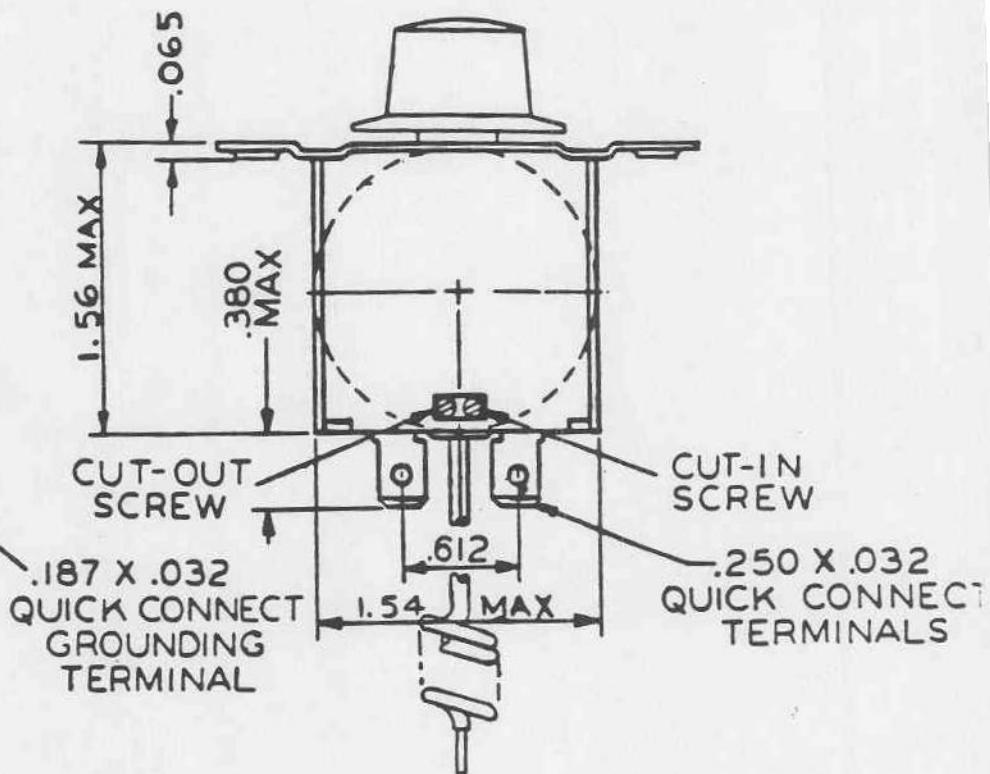
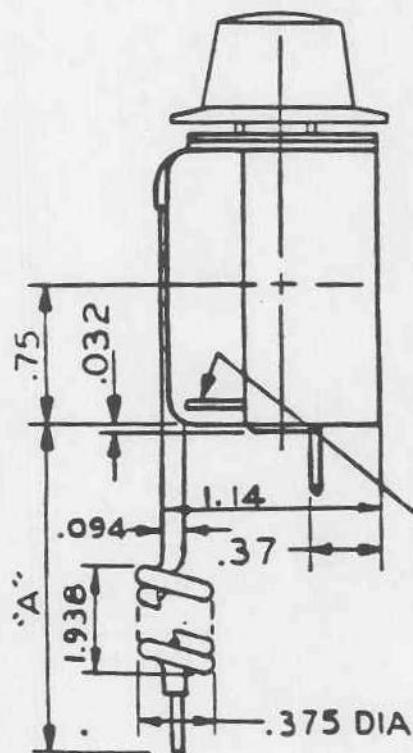
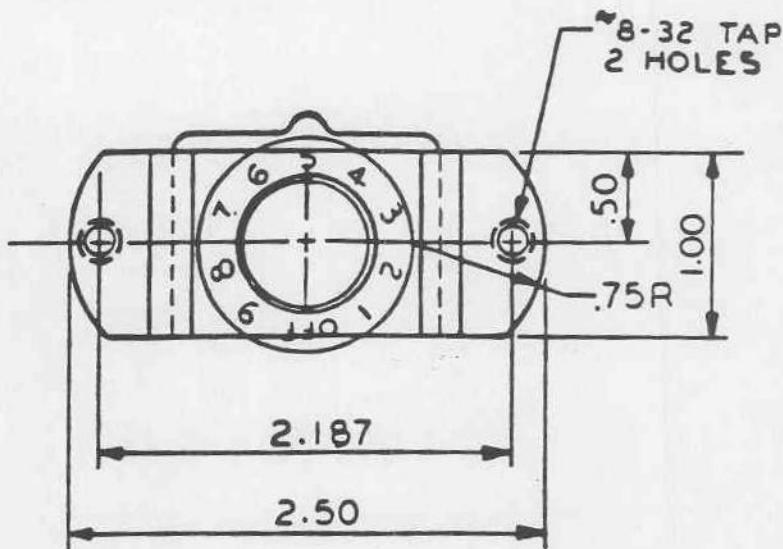
NOTE: THE FOLLOWING ADJUSTMENTS TO BE MADE BY AUTHORIZED PERSONNEL ONLY.

TURN CUT-IN OR CUT-OUT SCREW: "Counter-clockwise" for WARMER, "Clockwise" for COLDER temperature setting.

TO RESET CONTROL: Turn knob of one control to the off position. Turn knob on other control to the #6 position and set temperature as follows: The cut-in and cut-out adjustments are independent and separate. Therefore, the adjustment of one does not affect the operating point of the other. The cut-in point should be set first, i.e. set control to cut-in +4°C. (40°F) air temperature. When this has been accomplished, the cut-out point should be set to stop condensing unit when air temperature reaches +2°C. (36°F). Adjustments should be made a 1/4 of a turn at a time until desired operation is achieved. Sufficient time should be allowed between adjustments so that the system may balance out properly. When the control has been adjusted to hold the proper temperature range, reverse procedure and re-calibrate control. These adjustments to be made only if temperature range cannot be adjusted by the Dial Knob.



DIAL LAYOUT
CONTROL SHOWN IN OFF



TEMPERATURE CONTROL
(CUTLER-HAMMER - CTL001)

SEE PARTS LIST FOR
ITEM IDENTIFICATION.

FIG.-4

LATCH AND HINGE ADJUSTMENT INSTRUCTIONS

(KLEIN 2830-2110 LATCH AND 2842-1009 HINGE)

Hinge Adjustment

- A) Remove exterior cover plate by opening refrigerator door. Place screwdriver on interior portion of cover, forcing cover outward.
- B) Loosen the Three (3) screws into door plate "C" in position.
- C) Move adjusting plate "C" toward cabinet for tighter door gasket seal. Move adjustment plate "C" away from cabinet for lighter door gasket seal.
- D) Tighten screws "B".
- E) Replace cover plate "A".

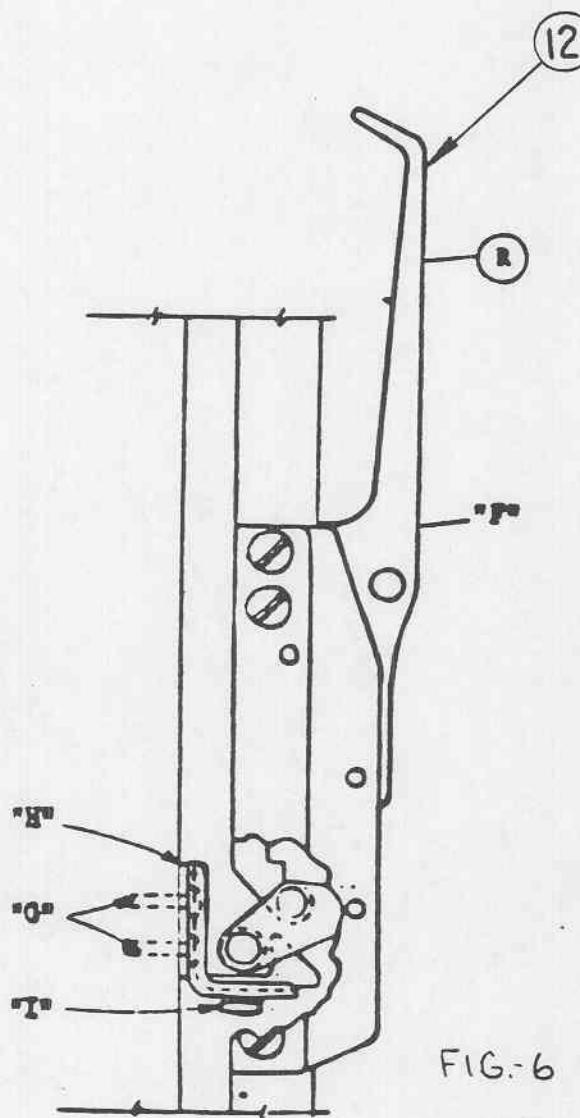


FIG.-6

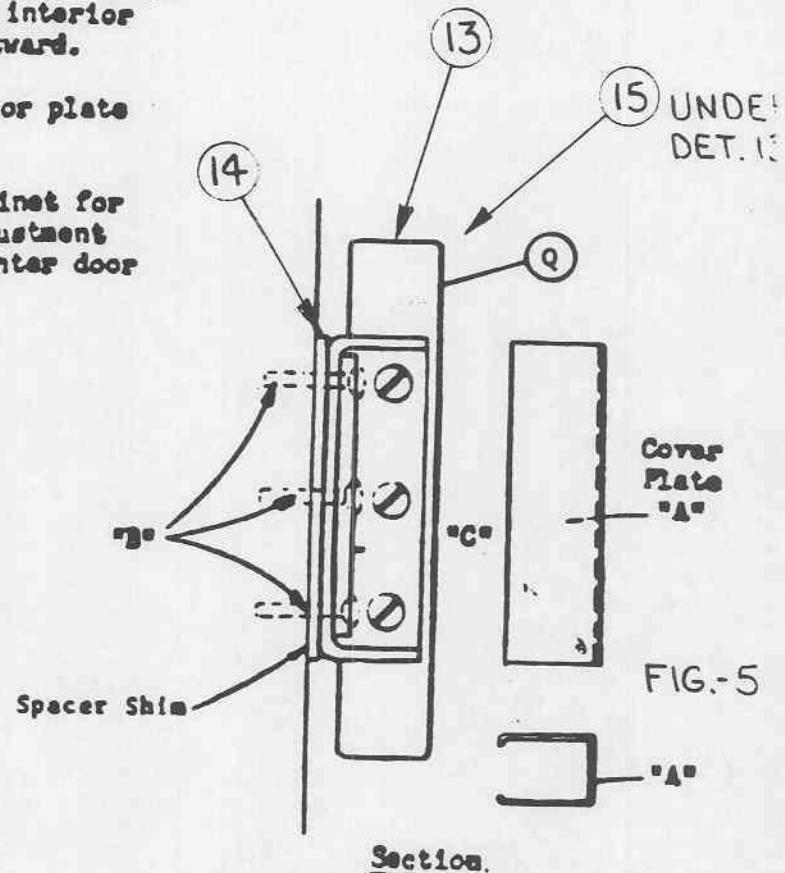


FIG.-5

Section

Klein Hinge 2842-1009

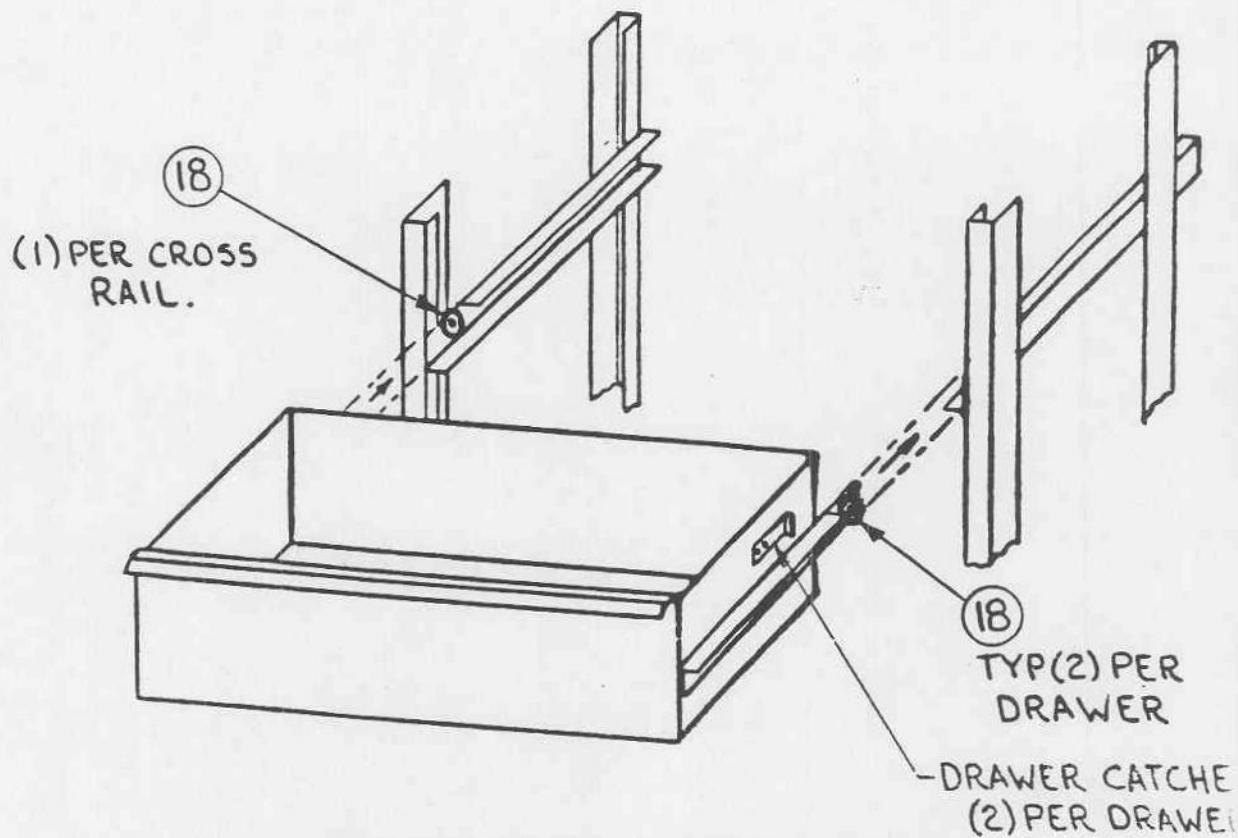
Latch and Strike Adjustment

- F) Latch as fastened to door.
- G) For up or down adjustment, loosen screws on strike which comes in contact with strike plate "M".
- H) Strike plate remains in position. Move strike up or down as required. Tighten screws "G" when adjustment is correct.
- I) For in and out adjustment, loosen screw. Adjust in or out as required and tighten screw "I" when adjustment is accomplished.

SEE PARTS LIST FOR
ITEM IDENTIFICATION

Klein Latch 2830-2110

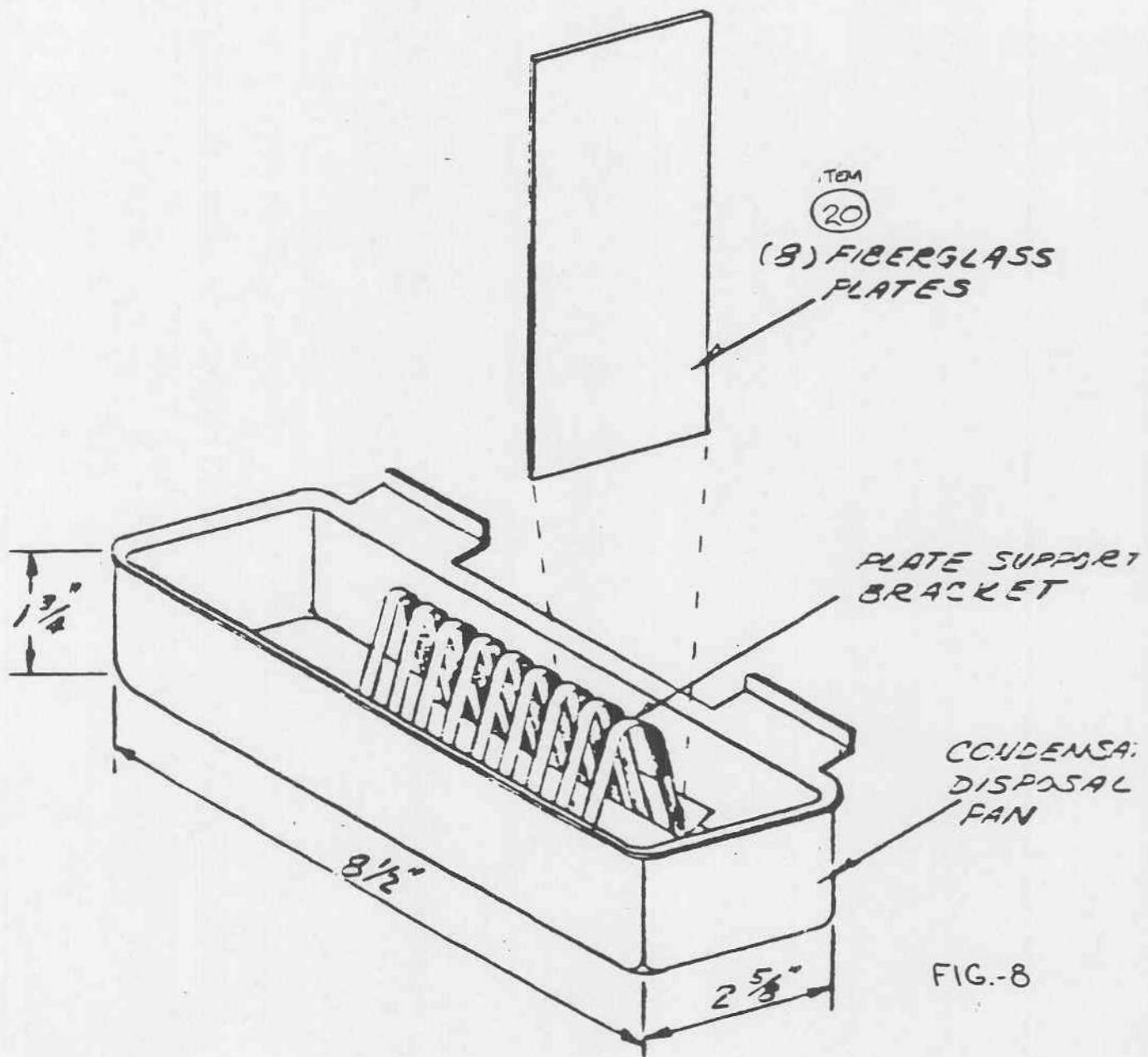
FIG.-7



DRAWER INSTALLATION INSTRUCTIONS
(FOR MODEL CTI-18-06)

1. Pull Drawer Open.
2. Depress Drawer Catches each side of drawer.
3. Pull drawer forward and upward.
4. To disengage rollers and catches.

TO REINSTALL, REVERSE ABOVE PROCEDURE.



②0 CONDENSATE EVAPORATOR



TECUMSEH HERMETIC CONDENSING UNITS

MODEL AE1360AA

R-12

1/5 HP

AIR COOLED

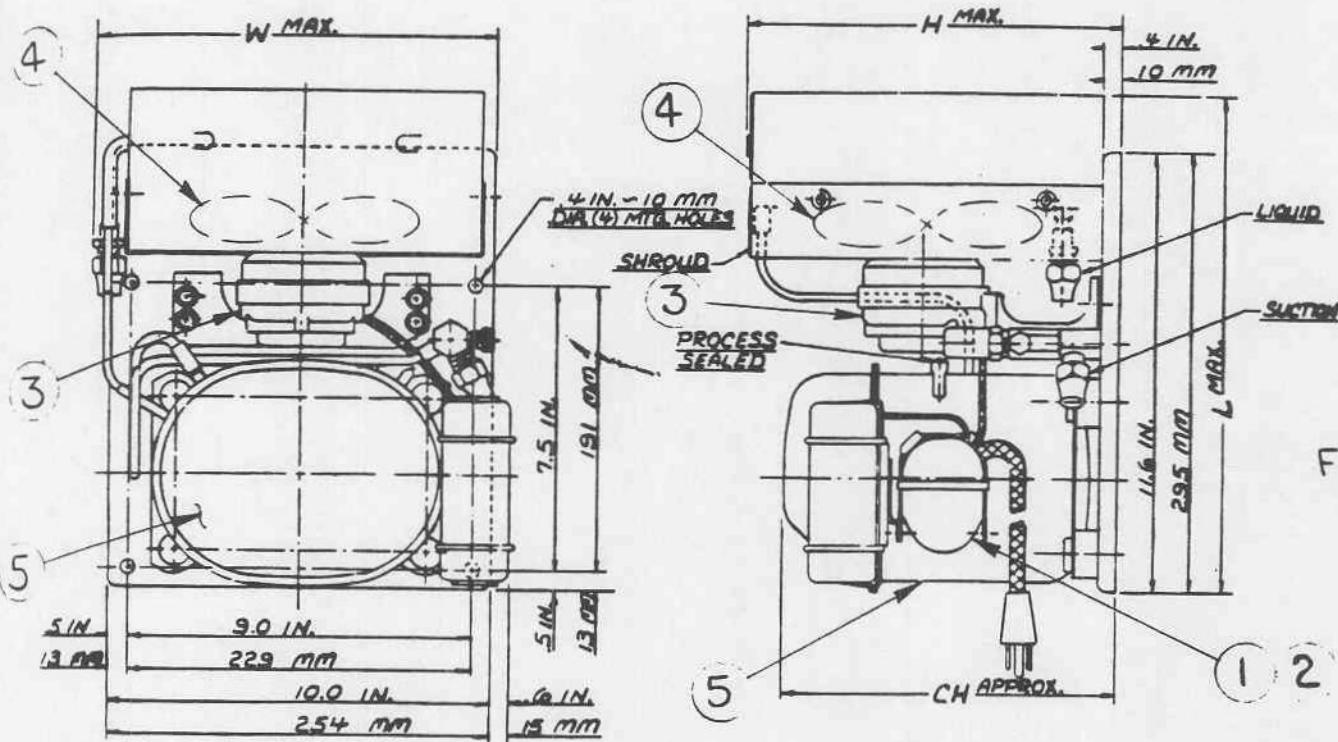


FIG.-9

Model	Dimensions				Line Connections		Pumpdown 90°F 90% Full	Air CFM	Oil Chg Oz.	Gross Wt. Lbs.
	L	W	H	CH	Suction	Liquid				
AE1360AA	12.7	11.2	9.8	8.0	3/8 F	3/8 F	---	---	16	35

*F = Flare, S = Solder, RF or RS = Rotolock Valve with Flare or Solder Connections

Factory Charge: 20 psig Nitrogen - MUST BE EVACUATED

60 HZ. PERFORMANCE

Evaporator Approved				Ambient						
Range		90°F		100°F			110°F			
°F	PSIG	BTU / HR	Watts	Head	BTU / HR	Watts	Head	BTU / HR	Watts	Head
-20	0.6	525	210	125	460	212	137	415	214	155
-10	4.5	700	230	135	635	238	150	580	242	165
0	9.15	885	258	150	810	266	165	765	275	180
+5	11.8	980	270	155	920	282	170	860	292	188
+10	14.6	1090	285	166	1020	300	175	960	310	195

SPECIFICATIONS

SPECIFICATIONS		115-60-1
Nominal Voltage	-----	100-50-1
Unit B/M	-----	2555-1
Voltage Range	-----	126.5 to 103.5
Min. Circuit Ampacity	-----	3.6
Max. Fuse Size (Amps)	-----	15
Compressor Model	-----	AE1360A
Bill of Material	-----	AE140AT-166-P1
RLA/LRA	-----	2.5/22.0
Cap. Cab. Assy.	-----	NR
Overload	-----	83601
Relay	-----	8209660A32
Relay Alternate	-----	820RR12A33
Cap. Start	-----	NR
Rating	-----	---
Cap. Run	-----	NR
Rating	-----	---
Fan Motor	-----	810G004A63
Alternate	-----	810E004A64
Alternate	-----	810M004A02
Pressure Controls	-----	NR
Contactor	-----	NR
Crankcase Heater	-----	NR
Fan Controls	-----	NR
Control Panel Assy.	-----	NR
Fan Blade	-----	51536
Fan Guard	-----	NR
Condenser	-----	50733
Condenser Shroud	-----	NR
Receiver Tank	-----	NR
Unit Drawing	-----	DGU-1396-11
Schematic or Elect. Dwg.	-----	DEAE-1

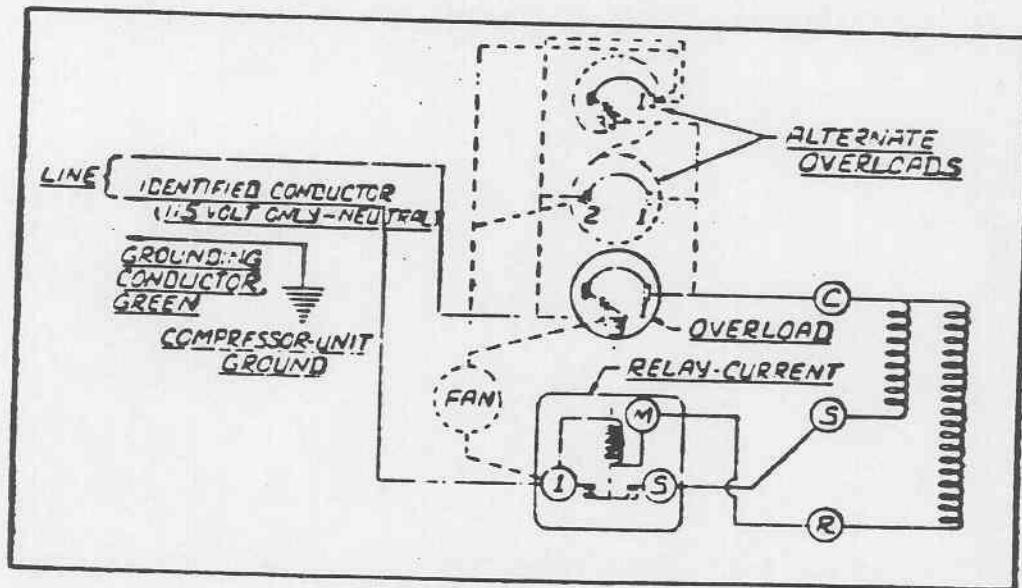


FIG.-10

115-VOLT SCHEMATIC WIRING DIAGRAM

PFR105-14

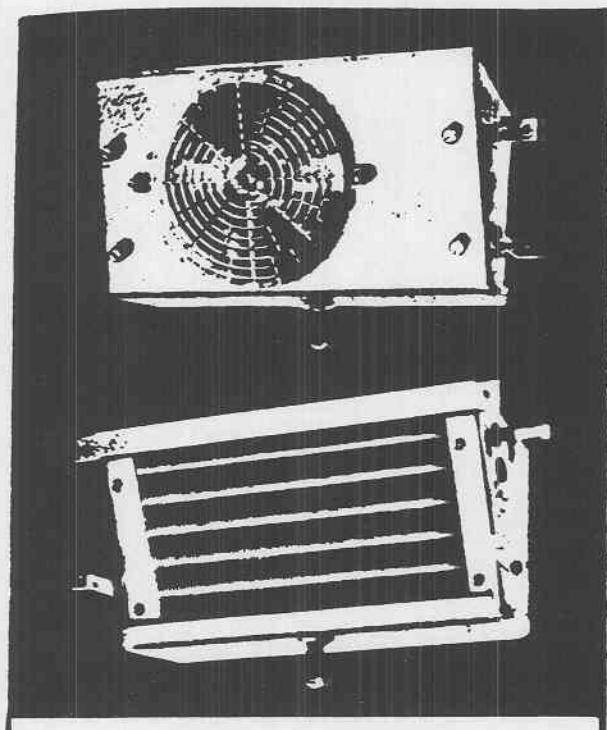
Page 14

U.L. Recognized (60 Hz. only) - File #SA2372 ---- Card Guide #SGYU
CSA Certified ----- Canadian File #12964C ---- USA File #8873C

MODEL VA VEE-AIRE UNIT COOLER



Recognized Component
Underwriter's Lab., Inc.



†Motor Connector Meets New UL
Requirements & Simplifies Installation



† Std. Equipment *Optional From Bohn
Provide Strain Relief At Cabinet

*MOLDED RECEPTACLES FOR
3-PRONG CONNECTORS (OPTIONAL)

Part Number	Lead Length
4318K001	30"



PFR105-15

Bohn Heat Transfer Division

Gulf + Western Manufacturing Company
Danville, Illinois 61832 • (217) 446-3710

BULLETIN 101.4
(Replaces Bulletin 101.3)

APPLICATION

The Vee-Aire is a deluxe unit designed for use in small reach-ins, back bar and under counter refrigerators, and many other applications where a small, compact unit is required. The thermal expansion valve mounts inside of the unit. The unit can be mounted from the ceiling or off the back wall or end walls; can be used in

THE COMPACT UNIT

FEATURES

- Attractive grained aluminum cabinet—lightweight, looks better, lasts longer, no paint to scratch!
- Captive fasteners provide easy, access to fan/drain panel for routine cleaning. Eliminates fastener loss.
- Molded Lexan® fan guard and fan — safety approved.
- Improved drain pan overlaps coil surface to catch all condensate.
- Stainless steel screws — prevent rust streaks.
- Plate-type aluminum fins with full collars on expanded copper tubes.
- Expansion valve mounts inside cabinet.
- Convenient, moisture-proof motor plug makes field connection easy. For plug-in simplicity, use the VA plug F-3-5.
- Generous coil surface to provide proper compressor balance.
- Motors life lubricated and impedance protected.
- Top quality throughout in a compact size.
- All Models UL component recognized.
- NSF Approved.
- BohnKote® optional.

FIG.-11

Canadian Headquarters:
Bohn Heat Transfer Division
Gulf + Western (Canada) Ltd.
Mississauga, Ontario L4W 1E3
Telephone (416) 674-1717

MODEL VA

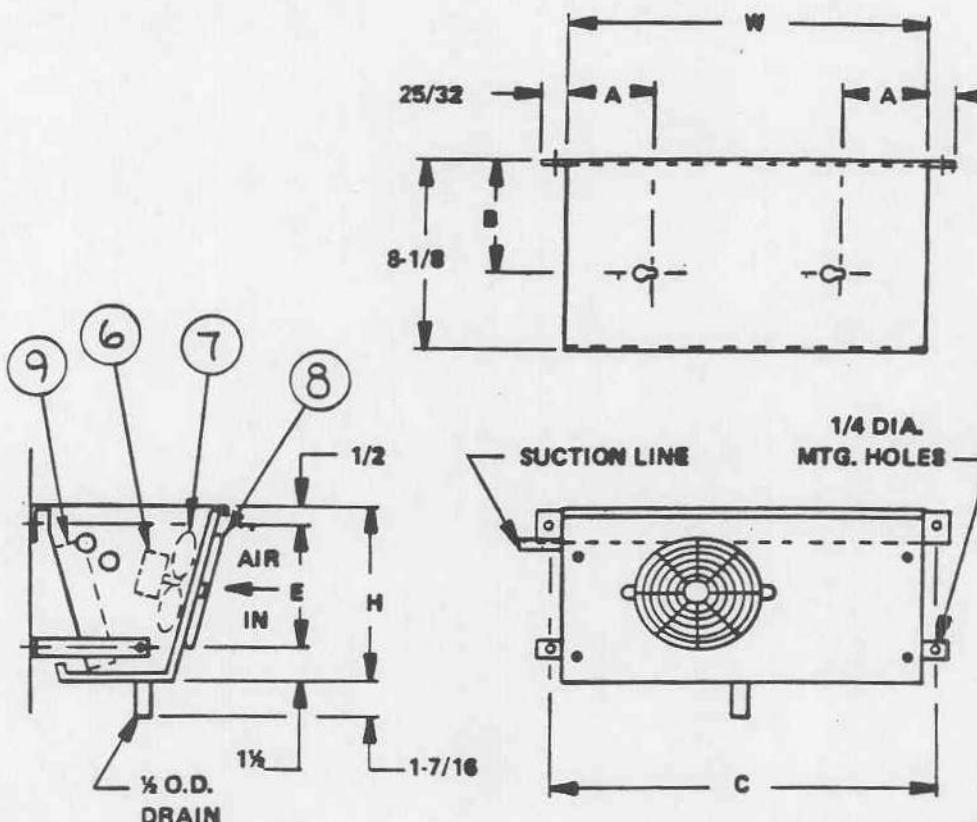


FIG.-12

PHYSICAL DATA

SIZE	DIMENSIONS (In.)						CONNECTIONS (In.)			Approx. Ship Wt. (Lbs.)
	A	B	C	H	W	E	Coil Inlet	Suction	Drain	
VA-007	2 ¹ / ₂	4 ³ / ₈	13 ¹ / ₈	6 ⁷ / ₈	12 ¹ / ₂	4 ⁷ / ₈	1/2 FN	1/4 OD	1/4 OD	9

PERFORMANCE & ELECTRICAL DATA

SIZE	BTU PER HOUR (60 Hz) (TD in °F.)			MOTOR		
				115 Volts		
	1° TD	10° TD	15° TD	CFM	Qty.	Watts
VA-007	65	610	975	135	1	35

SEE PARTS LIST FOR
ITEM IDENTIFICATION.

BOHN reserves the right to make changes in specifications or design, at any time without notice and without obligation to purchasers or owners of previously sold equipment.

MOTORS

The motors are lifetime lubricated for trouble-free operation. The fan panel is readily removed for servicing the motor. 115/1/60 models are suitable for 110/1/50 operation.

MAINTENANCE

It is recommended that the unit be inspected occasionally for dirt accumulation. Grease and deposits should be removed from the fan, fan guard and drain pan. Entrance for interior cleaning is at captive fasteners (4) on panel.

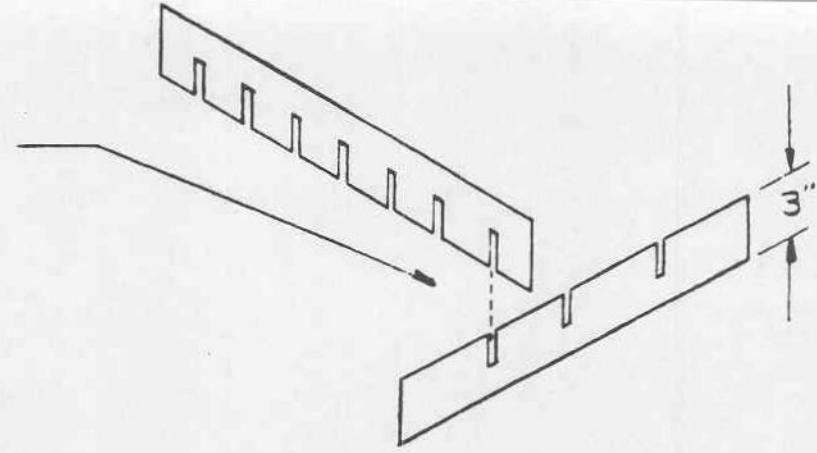
REPLACEMENT PARTS

Table No. 3 gives the part numbers of the common replacement parts. When ordering parts, always give the complete model number and serial number of the unit.

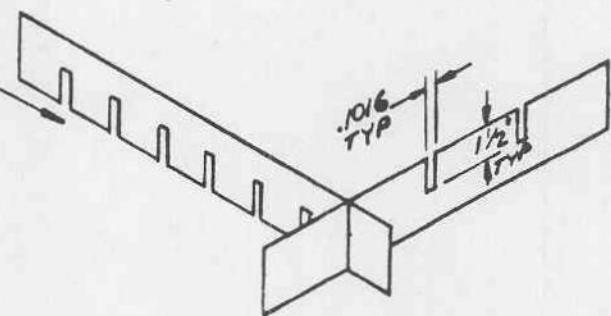
TABLE NO. 3

Motor (115V)	5021-S
Fan Blade	5101-B
Fan Guard	5054-D

TWO TYPICAL DRAWER SLATS
BEFORE ASSEMBLY

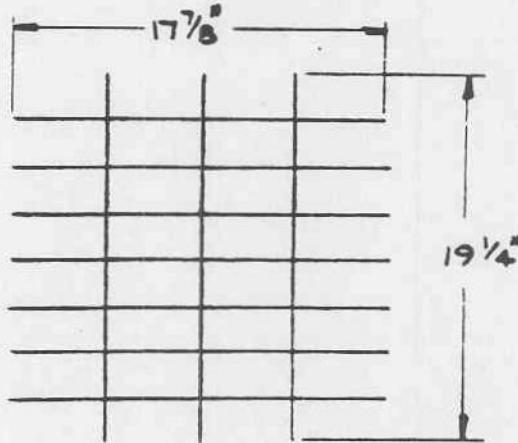
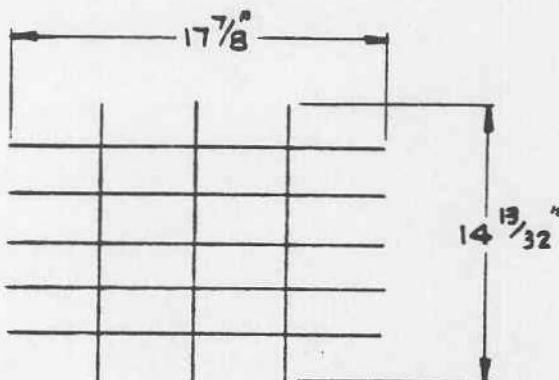


TWO TYPICAL DRAWER SLATS
ASSEMBLED



NOTE :

REMOVE PROTECTIVE PLASTIC
FROM SLATS BEFORE ASSEMBLING



DIVIDER ASSEMBLY "A"

CONSISTS OF : 3 DIVIDERS $14\frac{13}{32}$ " LG.
5 DIVIDERS $17\frac{7}{8}$ " LG.

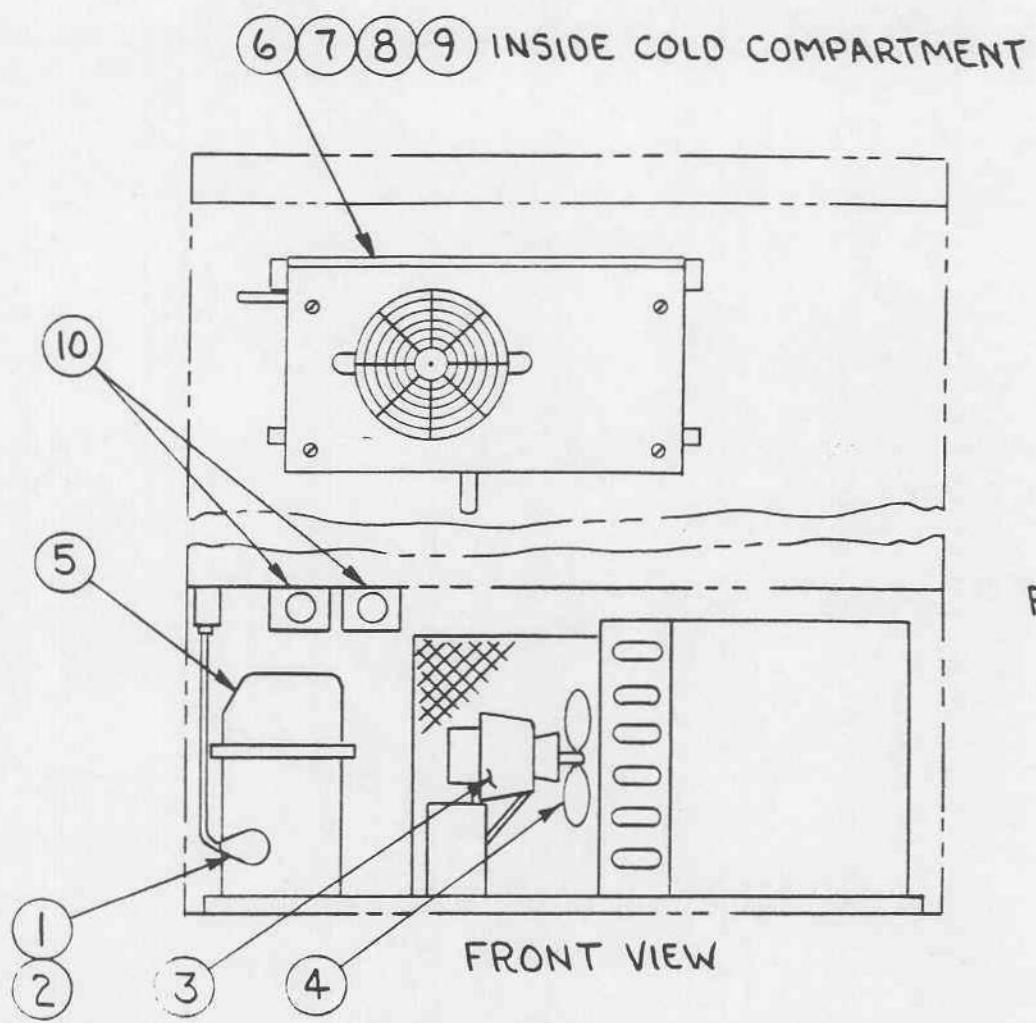
(FCR CT-1) PART # SR 1901-1 SET OF 2 - CONSISTS OF (1) STYLE "A" & (1) STYLE "B" ASSEMBLIES.

DIVIDER ASSEMBLY "B"

CONSISTS OF : 3 DIVIDERS $19\frac{1}{4}$ " LG.
7 DIVIDERS $17\frac{7}{8}$ " LG.

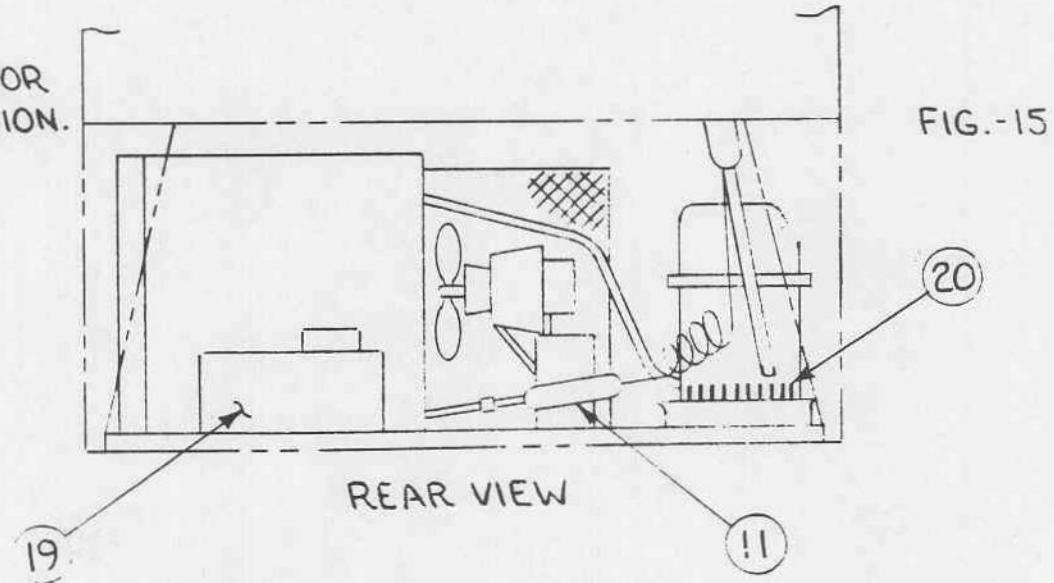
FIG.-13

16 DRAWER DIVIDERS



MODEL: CT1-1B-06

SEE PARTS LIST FOR
ITEM IDENTIFICATION.



MECHANICAL COMPONENT PARTS LOCATIONS

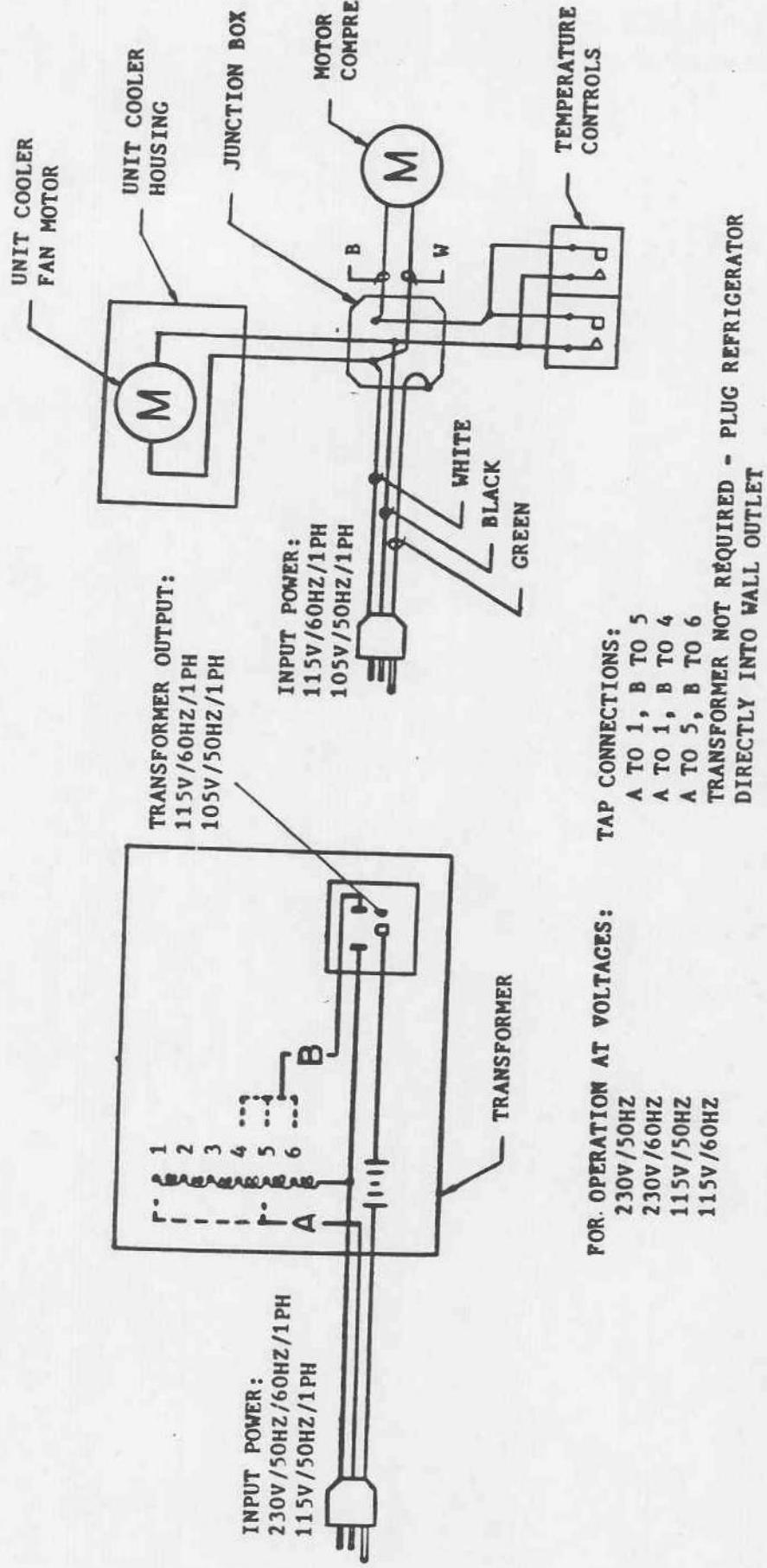


FIG.-16

SCHEMATIC WIRING DIAGRAM
CT 1-1B-06

LBL017

STORAGE INSTRUCTIONS

If these refrigerators are to be stored, they must be kept in a controlled environment. Indoor storage is required with the temperature kept within a range of -20°F. to + 120°F. (-29°C. to 49°C.).

Extended storage time may have an affect on the batteries located in the temperature monitor, as batteries have a limited shelf life. These batteries are of the rechargeable type and are automatically charged when the temperature monitor is on. If after 45 to 50 hours of use the batteries fail to hold a charge, they must be replaced with fresh batteries.

The only other component that may be affected by extended storage would be the pen arm located in the recording thermometer. After prolonged storage the pen arm may dry out and require replacement.

(FOR REFRIGERATOR - MODEL CTL-1B-06)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M</u>	<u>U/I</u>
1	59431	83601	OVERLOAD, CONDENSING UNIT	1	EA	
2	59431	82932	RELAY, CONDENSING UNIT	1	EA	
3	59431	810E006A65	MOTOR, CONDENSING UNIT FAN	1	EA	
4	59431	51536	BLADE, CONDENSING UNIT FAN	1	EA	
5	59431	AE1360A	MOTOR COMPRESSOR	1	EA	
6	14852	5007-S	MOTOR, UNIT COOLER FAN	1	EA	
7	14852	5101-B	BLADE, UNIT COOLER FAN	1	EA	
8	14852	5054-D	GUARD, UNIT COOLER FAN	1	EA	
9	14852	69546003	FINNED COIL, UNIT COOLER	1	EA	
10	32011	CTL001	CONTROL, TEMPERATURE	2	EA	
11	32011	CPY001	CAPILLARY DRIER ASSEMBLY	1	EA	
12	87518	2830-2110	FASTENER & STRIKE ASSY., DOOR	1	EA	
13	87518	2842-1009-1110	HINGE, DOOR	2	EA	
14	32011	SR1905-1	SHIM, HINGE	2	EA	
15	32011	SR1905-3	SHIM, HINGE	2	EA	
16	32011	SR1901-1	DIVIDER, DRAWER	1	SET	
17	32011	GKT011	GASKET, DOOR 21 1/2 X 21 1/2	1	EA	
18	87518	1338-1013-3000	BEARING, DRAWER ROLLER	8	EA	
19	ACME	T60802	TRANSFORMER 220/115/50/60 750 VA	1	EA	
20	17412	1800W	WAFERS, CONDENSATE EVAPORATOR	1	SET	

(GENERAL TROUBLE SHOOTING)
SERVICE CHART

	SYMPTOM	POSSIBLE CAUSE	REPAIR
A	Compressor will not start--no hum	1. Line disconnect switch open. 2. Fuse removed or blown. 3. Overload protector tripped. 4. Control stuck in open position. 5. Control off due to cold location. 6. Wiring improper or loose.	1. Close start or disconnect switch. 2. Replace fuse. 3. Refer to electrical section. 4. Repair or replace control. 5. Relocate control. 6. Check wiring against diagram.
B	Compressor will not start--hums but trips on overload protector	1. Low voltage to unit. 2. Starting capacitor defective. 3. Relay failing to close. 4. Compressor motor has a winding open or shorted. 5. Internal mechanical trouble in compressor. 6. Improperly wired.	1. Determine reason and correct. 2. Determine reason and replace. 3. Determine reason and correct, replace if necessary. 4. Replace compressor. 5. Replace compressor. 6. Check wiring against diagram.
C	Compressor starts, but does not switch off of start winding	1. Low voltage to unit. 2. Relay failing to open. 3. Run Capacitor defective. 4. Excessively high discharge pressure. 5. Compressor motor has a winding open or shorted. 6. Internal mechanical trouble in compressor (tight). 7. Improperly wired.	1. Determine reason and correct. 2. Determine reason and correct, replace if necessary. 3. Determine reason and replace. 4. Check discharge shut-off valve, possible overcharge, or insufficient cooling on condenser. 5. Replace compressor. 6. Replace compressor. 7. Check wiring against diagram.
D	Compressor starts and runs, but short cycles on overload protector	1. Excessive discharge pressure. 2. Low voltage to unit (or unbalanced if three phase). 3. Overload protector defective. 4. Run capacitor defective. 5. Compressor too hot--return gas hot. 6. Suction pressure too high. 7. Compressor motor has a winding shorted. 8. Additional current passing through overload protector.	1. Check ventilation, restrictions in cooling medium, restrictions in refrigeration system. 2. Determine reason and correct. 3. Check current, replace protector. 4. Determine reason and replace. 5. Check refrigerant charge (fix leak) add if necessary. 6. Check for possibility of misapplication. Use stronger unit. 7. Replace compressor. 8. Check wiring diagram. Check for added fan motors, pumps, etc., connected to wrong side of protector.

(GENERAL TROUBLE SHOOTING)
SERVICE CHART

12/E
Rev. 3/8

	SYMPTOM	POSSIBLE CAUSE	REPAIR
E	Unit runs OK, but short cycles on	1. Overload protector. 2. Thermostat. 3. High pressure cut-out due to: a. insufficient air or water supply. b. overcharge. c. air in system. 4. Low pressure cut-out due to: a. liquid line solenoid leaking. b. compressor valve leak. c. undercharge. d. restriction in expansion device.	1. Replace device. 2. Differential set too close--wide. 3. a. Check air or water supply to condenser--correct. b. Reduce refrigerant charge. c. Purge. 4. a. Replace. b. Replace. c. Fix leak, add refrigerant. d. Replace device.
F	Unit operates long or continuously	1. Shortage of refrigerant. 2. Control contacts stuck or frozen. 3. Refrigerated or air conditioned space has excessive load or poor insulation. 4. Dirty Condenser. 5. Evaporator coil iced. 6. Restriction in refrigeration system. 7. System inadequate to handle load. 8. Filter dirty.	1. Fix leak, add charge. 2. Clean contacts or replace contacts. 3. Determine fault and correct. 4. Clean condenser. 5. Defrost. Check defrost circuit. 6. Determine location and remove. 7. Replace with larger system. 8. Clean or replace.
G	Start capacitor open, shorted or blown	1. Relay contacts not opening properly. 2. Prolonged operation on start cycle due to: a. low voltage to unit. b. improper relay. c. starting load too high. 3. Excessive short cycling. 4. Improper capacitor.	1. Clean contacts or replace relay if necessary. 2. a. Determine reason and correct. b. Replace. c. Correct by using pump down arrangement if necessary. 3. Determine reason for short cycling and correct. 4. Determine correct size & replace.
H	Run capacitor open, shorted or blown	1. Improper capacitor. 2. Excessively high line voltage (110% of rated max.).	1. Determine correct size and replace. 2. Determine reason and correct.
I	Relay defective or burned out	1. Line voltage too high or too low. 2. Excessive short cycling. 3. Incorrect relay. 4. Incorrect mounting angle. 5. Relay being influenced by loose vibrating mounting. 6. Incorrect run capacitor.	1. Determine reason and correct. 2. Determine reason for short cycling and correct. 3. Check and replace. 4. Remount relay in correct position. 5. Remount rigidly. 6. Replace with proper capacitor.

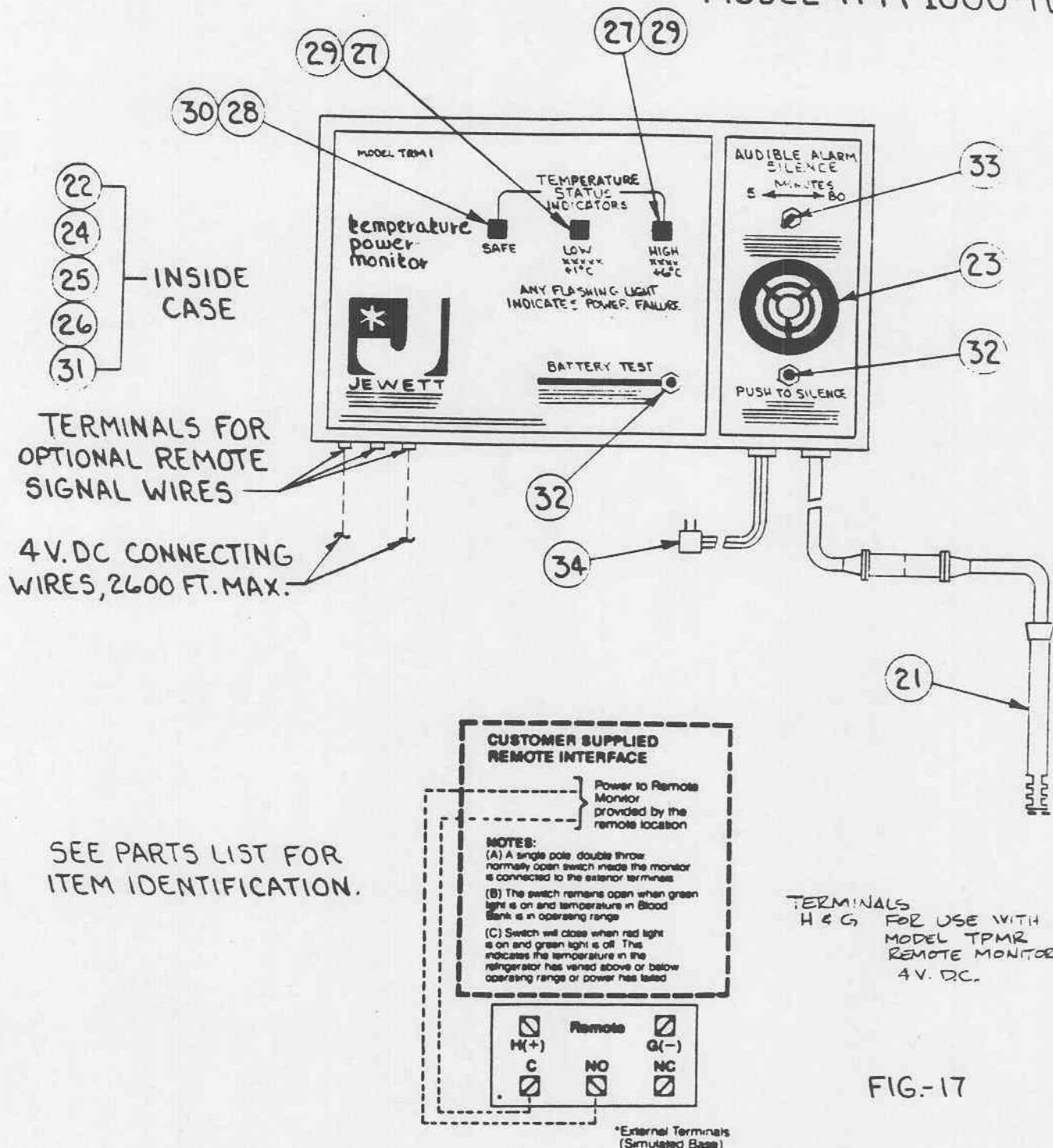
(GENERAL TROUBLE SHOOTING)
SERVICE CHART12/84
Rev. 3/85

SYMPTOM	POSSIBLE CAUSE	REPAIR
J Space temperature too high	1. Control setting too high. 2. Expansion valve too small. 3. Cooling coils too small 4. Inadequate air circulation.	1. Reset control. 2. Use larger valve. 3. Add surface or replace. 4. Improve air movement.
K Suction line frosted or sweating	1. Expansion valve passing excess refrigerant or is oversized. 2. Expansion valve stuck open. 3. Evaporator fan not running. 4. Overcharge of refrigerant.	1. Readjust valve or replace with smaller valve. 2. Clean valve of foreign particles, replace if necessary. 3. Determine reason & correct. 4. Correct charge.
L Liquid line frosted or sweating	1. Restriction in filter drier. 2. Liquid shut-off (king valve) partially closed.	1. Replace part. 2. Open valve fully.
M Unit noisy	1. Loose parts or mountings. 2. Tubing rattle. 3. Bent fan blade causing vibration. 4. Fan motor bearing worn.	1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.
N Unit cools but does not get to set point	1. Fan not operating.	1. Check door switch. a. Check to see if door switch actuator (angle) is depressing switch.
O Unit not defrosting (Paragon Timer)	1. Timer malfunctioning. 2. Timer pins missing. 3. Timer motor. 4. Timer contacts. 5. Defrost termination and fan delay thermostat defective. 6. Heater safety control contacts open. 7. Loose door seal. 8. Improperly set defrost termination and fan delay thermostat. 9. Poor contact between evaporation drain pan and heater element.	1. Manually advance timer to defrost to verify malfunction. 2. Install pins. 3. Replace timer. 4. Replace timer. 5. Replace defrost termination and fan delay thermostat. 6. Replace heater safety control. 7. Adjust door latch/install new gasket. 8. Adjust control CCW. 9. Install missing screws in blower coil housing.

NOTE: Jewett Refrigerators and Freezers are designed to operate in areas that are heated to 60°F. Installation in unheated areas may require a low temperature compressor protection kit for satisfactory operation.

TEMPERATURE/POWER MONITOR

MODEL: TPM 1000-1B



JEWETT TEMPERATURE POWER MONITOR TPM1000-1B

System Familiarization

The Jewett Temperature Power Monitor system is designed to continuously monitor temperature and power supply for blood and other controlled temperature storage. When an improper temperature is reached or the power supply is interrupted, the TPM system provides a visible and audible signal. It is designed to provide a different visible and audible signal for each type of problem so that you can determine the condition that caused the alert. A chart of these signals is included in this manual for easy reference. A copy of it should also be kept on hand at the station where 24-hour monitoring of the unit will take place.

Equipped with rechargeable nickle-cadmium (nicad) batteries, the TPM operates on AC power and maintains a full charge on its batteries through a trickle charge system. In the event of a power failure, the TPM uses its battery power to continue operating and to monitor the problem.

The TPM system comes standard with a feature that allows it to be easily connected to a master remote station.

The TPM is factory preset at $+1^{\circ}\text{C}$ to $+6^{\circ}\text{C}$ with accuracy to within $\pm .2^{\circ}\text{C}$.

The TPM system operates on standard 115-60-1 AC current. To operate at a different power supply, plug unit into outlet provided on transformer in mechanical compartment of refrigerator.

TPM FOR CUSTOMER SUPPLIED REMOTE LOCATION EQUIPMENT INTERFACE

Jewett TPM Series Monitors include as standard equipment three external terminals which are the Common, the Normally Open and the Normally Closed Dry contacts of a hermetically sealed relay. The relay is energized when all conditions are safe and de-energized when any unsafe condition occurs. The current-carrying capability of this relay is 1 ampere at 115VAC (resistive) or 1 ampere at 28VDC (resistive). This feature permits the TPM monitor to be connected to a master remote monitoring station that has its own source of power.

INSTALLATION INSTRUCTIONS - TPM SERIES

1. The monitor is to be used with the Jewett Blood Bank Refrigerator. Locate the access hole and mounted bracket, with solution bottle inside the refrigerator on the back wall.
2. The monitor can be wall mounted within 5' of this access hole.
3. Select audible silencing time period of 5 or 80 minutes and set TIME SELECTOR switch.
4. Assemble quick disconnect plug to temperature sensor by aligning indicator provided on each section of receptacle. This completes the temperature sensing circuit and activates the battery system. Press "push to silence" switch to initiate selected silence period.
5. Insert the sensor through access hole and position in solution bottle
6. Seal access hole with sealing compound. The top of solution bottle should also be sealed to prevent evaporation.
7. Position the monitor case as desired and plug into the same circuit as the refrigerator so that if power failure occurs, the monitor will sound immediately using battery power. For 115/50 or 230/50/60 plug monitor into receptacle provided on transformer located in mechanical space.

OPERATIONAL DATA

1. When the temperature is safe and AC power condition is normal, the green light is on constantly, the red lights are off and the audible warning system is silent.
2. To test the battery power, press the battery test button and the audible alarm signal will sound with a short on and a long off. The green light will pulse with a short on and a long off indicating that the temperature is still safe but there has been a power "failure".
3. If an improper temperature is reached, the audible alarm will signal a long on and a long off, the green light will go off and the appropriate red light will signal a constant on. To silence the audible signal, press the "push to silence" button. The red light will remain on until temperature returns to normal. When the proper temperature is reached, the red light will go off and the green light will come on.
4. Electrical power failure: Under normal conditions, the TPM will operate on standard house current. However, in the event of a power failure, the monitor will signal in the same way as it did for the battery test procedure as long as the temperature remains in the "safe" range. As soon as an improper temperature is reached, the audible signal will change to a short on and short off, and the red light indicating the appropriate temperature condition will pulse with a short on and short off. During the power failure, the TPM will maintain all monitoring functions.
5. Under normal operating conditions, the TPM monitor functions on AC current and maintains its batteries at full charge by an automatic trickle charge system. After a power failure, the batteries will recharge while the monitor is operating; but recharging from no charge to full charge can take approximately 50 hours.
6. Audible silencing feature: Set TIME SELECTOR switch to desired time period (either 5 minutes or 80 minutes). Depress SILENCING button. Audible signal is silent for selected time period.

GUIDE TO THE TPM WARNING SYSTEM

What the Visible and Audible Signals
on the TPM and TPMR Indicate

Temperature Status	Indicators (Visual)	Audible Alarm	Condition of AC or Battery Power	Condition of Temperature
Safe	High	Low		
ON	OFF	OFF	Silent	Normal Safe
OFF	ON	OFF	Long ON Long OFF	Normal Above high limit.
OFF	OFF	ON	Long ON Long OFF	Normal Below low limit.
Short ON Long OFF	OFF	OFF	Short ON Long OFF	Failure Safe
OFF	Short ON Short OFF	OFF	Short ON Short OFF	Failure Above high limit.
OFF	OFF	Short ON Short OFF	Short ON Short OFF	Failure Below low limit.

Reset instructions: To silence the audible signal, press the "push to silence" button. The red light will remain on until temperature returns to normal. When the proper temperature is reached, the red light will go off and the green light will come on. To reset the audible silencing feature flip the TIME SELECTOR toggle switch back and forth and then position to the desired time period (either 5 or 80 minutes). Depress SILENCING button. Audible signal is silent for selected time period and automatically re-activated when an unsafe temperature condition occurs.

FIG. 18

(FOR TEMPERATURE/POWER MONITOR - MODEL TPM1000-1B)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M U/I</u>
21	32011	MOD-M0002	THERMOSTAT ASSY. (+1° TO +6°C)	1	EA.
22	32011	MOD-M0021	BATTERY PACK ASSY. 5VDC	1	EA
23	32011	MON-M0001	AUDIBLE DEVICE	1	EA
24	32011	MON-M0024	CIRCUIT BOARD ASSY.	1	EA
25	32011	MON-M0025	CIRCUIT, INTEGRATED, XR2240	1	EA
26	32011	MON-M0026	CIRCUIT, INTEGRATED, XR7555	1	EA
27	32011	MON-M0027	LAMP, LED, RED	2	EA
28	32011	MON-M0028	LAMP, LED, GREEN	1	EA
29	32011	MON-M0029	LENS, SQUARE, RED	2	EA
30	32011	MON-M0030	LENS, SQUARE, GREEN	1	EA
31	32011	MON-M0031	RELAY, DPDT 12VDC	1	EA
32	32011	MON-M0032	SWITCH, PUSH BUTTON	2	EA
33	32011	MOD-M0011	SWITCH, TOGGLE, SPDT	1	EA
34	32011	MON-M0035	TRANSFORMER 115/12 VAC	1	EA



7-Day Recording Thermometer

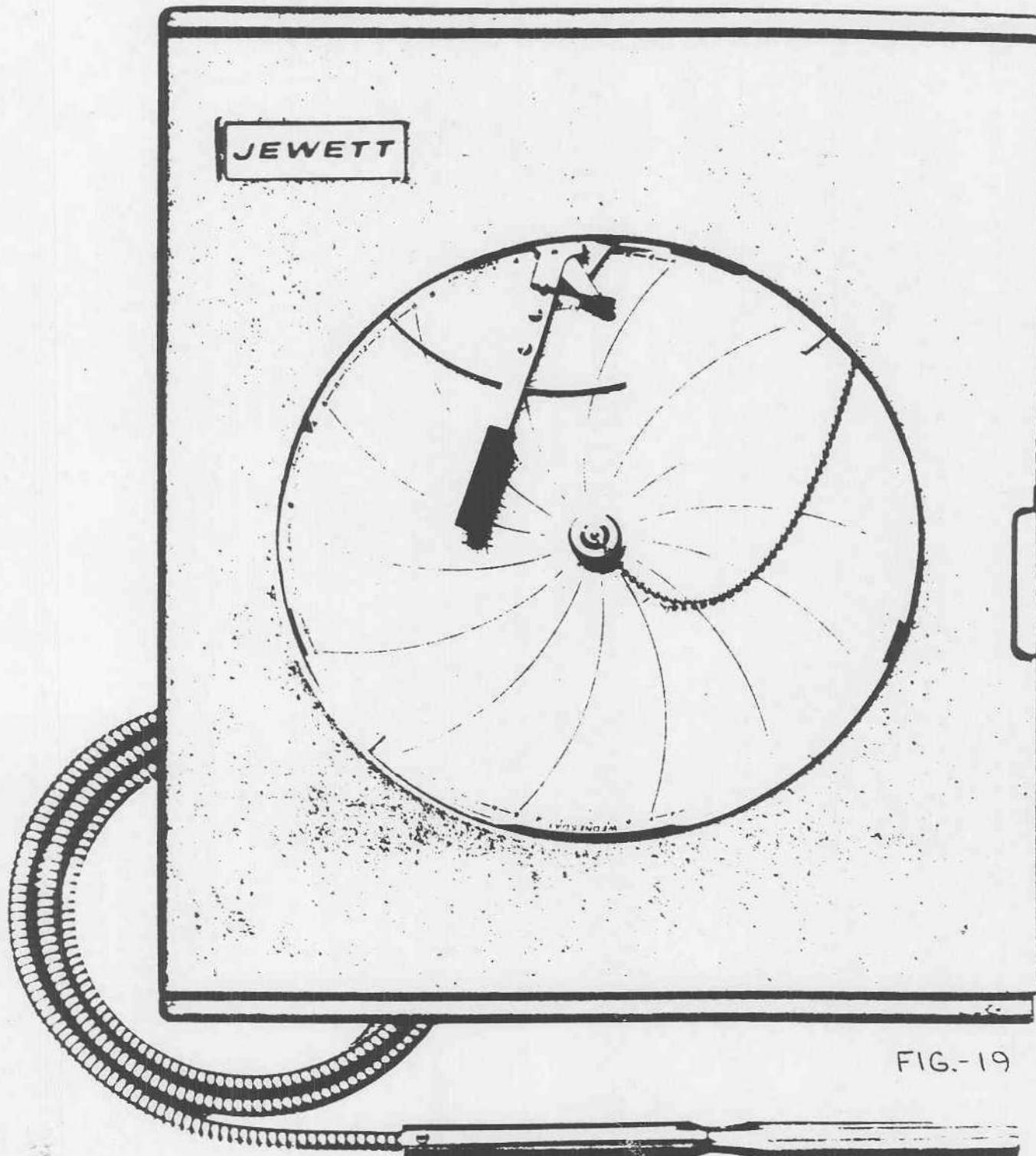


FIG.-19

Model 8GR1WBR for Refrigerators

GENERAL INFORMATION

The Jewett 7-day Recording Thermometer is a sensitive and specially designed instrument for keeping permanent and accurate blood temperature records. It provides uninterrupted observation of stored blood temperatures pathologists require to determine the extent of damage that can be caused by temperature fluctuations. They can then decide whether the blood can still safely be used. This is a necessary feature for modern blood banks in answering any technical or legal questions that may arise.

The Jewett Recording Thermometer records in Celsius readings.

This 7-day spring-wound instrument features the Mark-a-Matic II continuous flow inking system. Each fiber-tipped pen has its own sealed, specially formulated ink supply and provides up to 8 months of fine line temperature recording. This pen has a sealed, self-contained ink supply that is specially formulated to insure continuous flow without skipping or blotting. The flexible stainless steel pen arm easily inserts into pen and is attached to the recording thermometer by two screws. A temperature sensitive stainless steel encapsulated sensor is immersed in liquid. In the event of a power failure, there is a complete record of the rise of temperature while the current is off, as well as its fall with the restoration of power. The unit is furnished with 100 8-inch centigrade charts.

STANDARD FEATURES

Jewett offers a recording device that features:

- Mark-a-Matic inking system.
- Stainless steel sensor.
- Stainless steel armoured capillary cable.
- 7-day spring-wound mechanism. Insures continuous record of temperature fluctuations in event of power failure.
- Continuous accurate record-keeping on quick, easy-to-read charts.
- 100 8" (203 mm) charts supplied with each recorder.
- Chart number RDR019 charts (12°C to 43°C).

GENERAL INFORMATION

A. Read instructions carefully before installing the instrument.

B. The recorder is shipped with the following accessories.

One box of 100 charts

One chart drive winding key

C. When ordering replacement parts, refer to the part name and number in the parts list. Always specify model and serial number when ordering.

This instrument is guaranteed to function under all normal conditions. With proper care it will render lasting accurate service.

INSTALLATION

If possible, select a well lighted location that is free from dust, dirt, corrosive fumes and vibration. The instrument case must be vertical and level. The instrument case is provided with three mounting lugs for wall or flush mounting. See Fig. 21 on page 36 for mounting dimensions. The instrument should be located so that it will not be subjected to sudden or extreme temperature changes. Do not place the recorder case or any part of the tubing near steam pipes, furnaces or other heated surfaces.

CAPILLARY TUBING

Avoid bending the tubing sharply. It is suggested that all excess tubing be coiled and installed close to the wall directly under or as near to the case as is possible.

CALIBRATION

This recorder has been accurately calibrated at the factory. Before making any adjustments, the instrument should be in operation for at least 48 hours. Thereafter, should any adjustment be necessary, check the recorder's temperature readings against an accurate test thermometer.

This is done by placing the bulb of the test thermometer alongside the bulb of the recorder, in a well agitated liquid bath. Then compare the readings after the bulbs have been held in the bath for five (5) minutes. If the recorder does not check with the test thermometer, correction can be made by means of the adjusting screw at the upper right of the pen arm. If sufficient correction cannot be obtained in this manner, it is recommended that the factory be notified, giving exact details including model and serial number. Do not ship the recorder back to the factory for readjustment or repair without written authorization from the factory.

CHART DRIVE (MECHANICAL)

Wind the chart drive each time when changing the chart. With the chart removed, insert the winding key through the hole in the chart plate and wind arbor in the direction indicated by the arrow on the plate. DO NOT OVERWIND. An observation cutout has been provided in the chart plate to observe the balance wheel to ascertain whether the chart drive is operating. Be sure on/off switch located under chart plate is in the "on" position.

(continuation)

If the chart does not start after winding, reinsert the key and release suddenly after winding the chart drive fully. Repeat if necessary.

PEN LIFTER

A pen lifter has been provided to raise the pen off the chart whenever required. The pen is raised by pulling on the metal tab located at the upper left-hand corner of the chart plate. The pen is lowered by depressing the tab.

RENEWAL OF CHARTS

Raise the pen lifter as far as it will go. This will provide approximately 1/2" (13 mm) of clearance for the removal of the chart. To remove the chart, unscrew the knob at the center of chart. Position the new chart so that the correct time line coincides exactly with the red pointer on the chart plate. Then replace center chart knob and screw tightly against chart. Lower pen gently onto chart by depressing pen lifter fully. A small dot of ink appearing where the pen point touches the chart will indicate that the pen will trace properly.

INKING PEN

The pen system consists of a self-contained ink reservoir with a porous plastic stylus which is slipped onto the outboard end of the pen arm, firmly. Two screws are provided at the upper end of the pen arm to provide adjustment of its length so that the pen tracks the time line on the chart. Check this after each replacement of the pen and adjust accordingly. Remove colored cap. If stylus does not quite touch the chart, adjustment can be made by slightly bending the pen arm in the center. Do not have more pressure than necessary to make a fine line.

NOTE: AS THE INK SUPPLY NEARS EXHAUSTION, THE INK COLOR BECOMES LIGHTER. THIS INDICATES THAT THE PEN SHOULD BE REPLACED.

REMOVAL OF CHART PLATE

To remove the chart plate, insert index fingers into the openings at the lower left and right hand corners of the chart plate. Press upward against the top of the spring loaded chart plate posts with thumbs and lift the chart plate off the posts. Push the chart plate towards the top of the recorder and remove.

To replace chart plate, position the openings at the upper edge of the chart plate on the upper chart plate posts. This will locate the chart plate correctly over the lower plate posts. Then snap it into position by depressing lower edge.

INSTALLATION INSTRUCTION

Your Jewett blood bank refrigerator has been equipped at the factory for ready installation of the temperature recorder. An access port has been provided in the cabinet to accommodate passage of the recorder sensor bulb. The blood bank refrigerator (14") has a bracket supplied with a polyethylene bottle mounted on the cabinet interior. Remove gray sealer (permagum) from the white access port. Fill the bottle with a solution of 10% glycerin in water and install in bracket. Insert sensor bulb through access port into plastic bottle, making certain that the lower 4" (102 mm) is completely immersed. Repack both ends of access port with the sealer. To prevent evaporation of liquid, seal top of bottle with cap provided. Mount instrument on wall or other solid support.

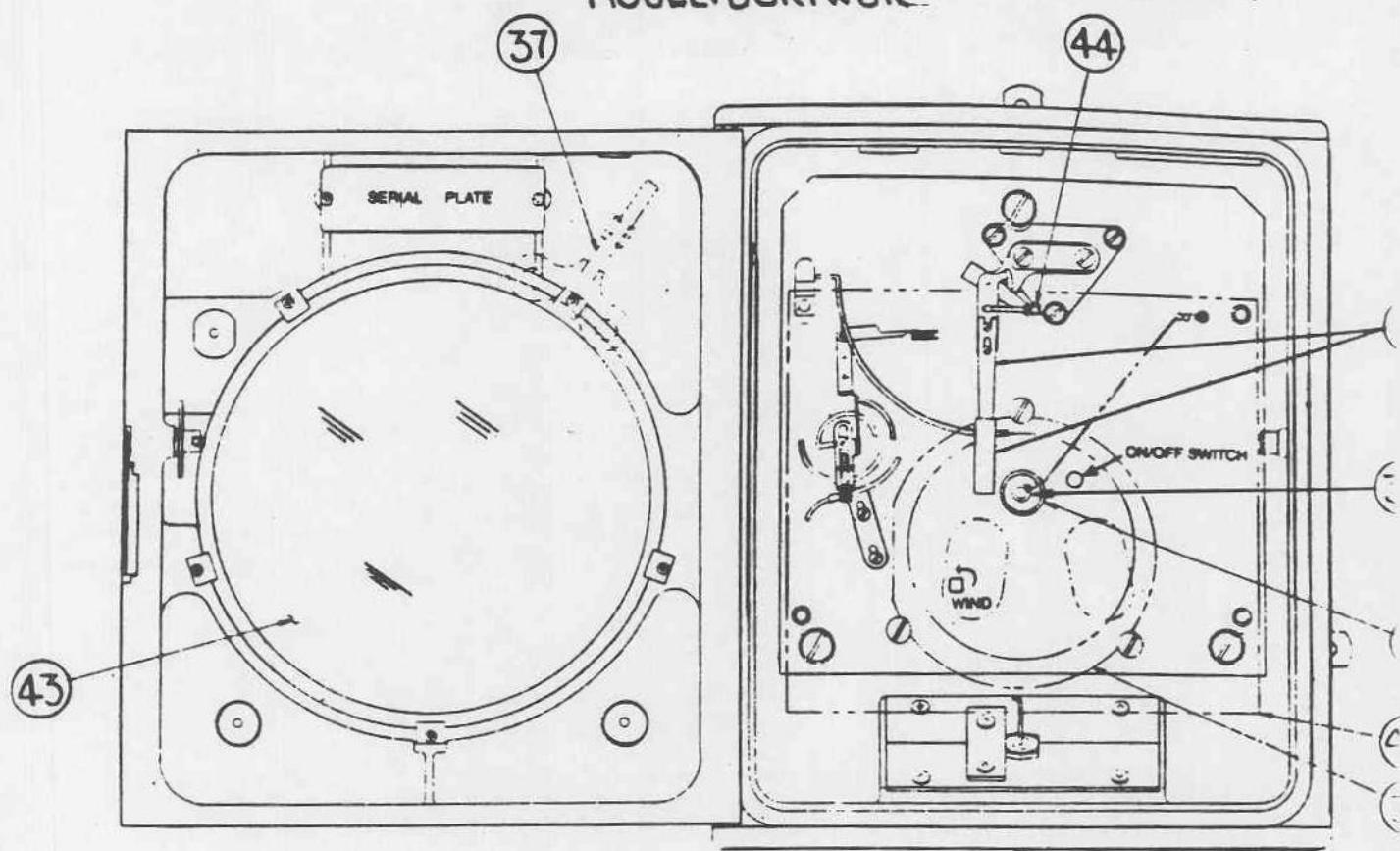


FIG.-20

RECORDER CASE DIMENSIONS (Inches shown, mm in parentheses)

Overall case size is 10-1/8 (257) wide x 12-3/8 (314) high x 4-15/16 (125) deep.

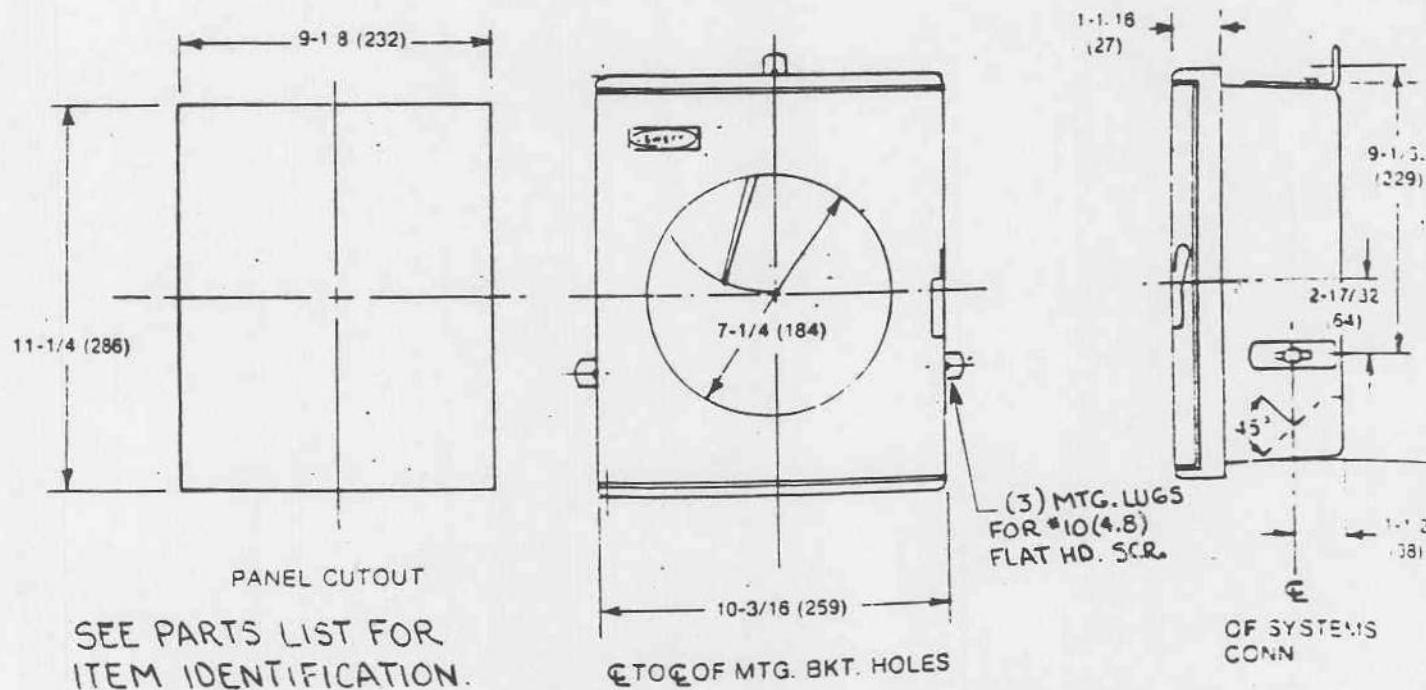


FIG.-21

(FOR RECORDING THERMOMETER - MODEL 8GR1WBR)

<u>ITEM #</u>	<u>FSCM</u>	<u>VENDOR PART #</u>	<u>ITEM NAME</u>	<u>QTY/EI</u>	<u>U/M U/I</u>
35	32011	RDR010	CHART DRIVE - 7 DAY SPRING WOUND	1	EA
36	32011	RDR024	MARK-A-MAGIC II KIT CONSISTING OF: (6) DISPOSABLE PENS (1) PEN ARM	1	EA
37	32011	RDR027	KEY, WINDING, CHART DRIVE	1	EA
38	32011	RDR013	KNOB, CHART WITH BEADED CHAIN	1	EA
39	32011	RDR006	HUB, CHART	1	EA
40	32011	RDR044	PLATE, CHART	1	EA
41	32011	RDR019	CHART (J7-12+43-8)	100	BX
42	32011	RDR005	THERMAL SYSTEM (-12-+43°C)	1	EA
43	32011	RDR003	GLASS, DOOR	1	EA
44	43011	RDR007	SCREW, MICROMETER ADJUSTMENT (PEN ARM)	1	EA